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NATIONAL COMMUNICATIONS FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION: GREENHOUSE GAS INVENTORY DATA FROM 1990 TO 1998

Report on national greenhouse gas inventory data from Annex I Parties for 1990 to 1998

Note by the secretariat

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I. INTRODUCTION

A. Mandate

1. In accordance with decisions 9/CP.2[1] and 3/CP.5 of the Conference of the Parties (COP), national inventory data on emissions by sources and removals by sinks are to be submitted by Annex I Parties by 15 April of each year. The submission of national inventory data for the years 1990 to 1998 was due by 15 April 2000. The Conference of the Parties, by its decision 6/CP.3, requested the secretariat to collect, process and publish, on a regular basis, national greenhouse gas (GHG) inventories submitted annually by Annex I Parties in accordance with decision 9/CP.2. As well, by its decision 6/CP.5, the Conference of the Parties requested the secretariat to prepare documentation in support of the technical review of GHG inventories outlined in that decision.

B. Scope of the note

2. The latest available GHG data for 1990-1998, and data from earlier submissions for Annex I Parties that have not yet reported inventories this year, have been compiled in this document. It contains a brief description of the status of reporting of annual GHG emission inventories, highlighting the timeliness of reporting and completeness of the data reported. The tables contain data on GHG emissions and removals by 38 out of 40 Annex I Parties[2] for the period 1990-1998, where available, as provided in the annual submissions of GHG inventories or national communications.

3. This document has a dual purpose: it is the traditional annual set of national GHG inventories submitted so far by Annex I Parties and the compilation of inventory data constituting part of the synthesis and assessment report requested by the Conference of the Parties in the context of its decision 6/CP.5 on the technical review of GHG inventories. The document's structure resembles that of previous sets of inventory data, with the inclusion of some additional data where possible (e.g. on land-use change and forestry).

II. STATUS OF REPORTING

4. The data in this document are compiled from the recent submissions of 30 Annex I Parties that have submitted their GHG inventory data due on 15 April 2000 (see table 1) as well as from previous annual inventories or national communications for eight other Annex I Parties. As the guidelines for reporting national GHG inventories have been revised since last year's submissions, this is the first time Annex I Parties have reported using the new guidelines that were adopted by the COP at its fifth session (decision 3/CP.5). The new guidelines, which include a common reporting format, provide for a more uniform and complete reporting of inventory data than the previous guidelines.

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[1] For the full texts of decisions adopted by the Conference of the Parties at its second, third and fifth sessions, see documents FCCC/CP/1996/15/Add.1, FCCC/CP/1997/7/Add.1 and FCCC/CP/1999/6/Add.1, respectively.

[2] Data for Belarus and Croatia are not included as Croatia has not yet submitted an annual inventory or national communication and the Convention entered into force for Belarus only on 9 August 2000.

5. The existence of these guidelines has apparently contributed to an increase in the number of Annex I Parties reporting, as well as the timeliness and completeness of submissions. The effort made by those Annex I Parties that have submitted recent inventories to adhere to the new guidelines in such a short period of time is commendable. Twenty-three Parties have reported in full or partially using the common reporting format of the new guidelines (see table 1). Although reporting has not been complete or the guidelines fully adhered to, Annex I Parties have indicated their intent to continue to improve reporting as they adapt to the new guidelines.

6. As not all Annex I Parties provided recent submissions, or did not include data for all years in their most recent submissions, data have been compiled for the period 1990-1998 from various sources. Table 2 below provides an indication of which inventory submissions or national communications were the source of data for the relevant years. As the information for these years for some Annex I Parties has been taken from various submissions, trends in emissions may not be consistent.

7. The data available from the various submissions are not always complete. In addition to not having data for all years, data were not always available for all gases or source and sink categories required in the guidelines. Where data were not available, the tables contain blank spaces.

Table 1. Dates of 2000 GHG inventory submissions

Australia*	13 July 2000	**Italy****	20 March 2000
Austria*	14 April 2000	**Latvia***	16 April 2000
Belgium*	20 April 2000	**Lithuania***	21 April 2000
Bulgaria*	14 April 2000	**Monaco**	15 May 2000
Canada*	13 July 2000	**Netherlands****	19 May 2000
Czech Republic*	21 April 2000	**New Zealand***	29 April 2000
Denmark	15 April 2000	**Norway***	14 April 2000
Estonia*	29 November 1999	**Poland**	20 April 2000
European Community*	18 April 2000	**Portugal**	11 April 2000
Finland*	14 April 2000	**Slovakia***	20 April 2000
France	12 April 2000	**Spain***	14 April 2000
Germany	4 August 2000	**Sweden***	14 April 2000
Greece*	27 June 2000	**Switzerland***	14 April 2000
Hungary*	29 May 2000	**United Kingdom ***	19 May 2000
Ireland*	17 April 2000	**United States***	11 April 2000

* Party provided all or some of its submission using the common reporting format.
** Party provided two submissions in 1999. The second submission contained data for 1998 and for the purpose of this document is considered as the submission for the year 2000.
*** Party provided its submission in two parts. First part was received on the date indicated in table.

Table 2. Sources of GHG emissions data (by Party and type of submission)[a]

Party	Base year other than 1990	1990	1991	1992	1993	1994	1995	1996	1997	1998
Australia		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Austria		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Belgium		INV99	INV99	INV99	INV99	INV99	INV99	INV99	INV00	INV00
Bulgaria	INV00 (1988)	INV00	INV00	INV00	INV00	INV00	INV00	no data	INV99	INV00
Canada		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Czech Republic[b]		NC2 & INV99	NC2 & INV99	NC2 & INV99	NC2 & INV99	NC2 & INV99	NC2 & INV99	INV98 & INV99	INV99	INV00
Denmark		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Estonia		NC2	NC2	NC2	NC2	NC2	NC2	NC2	INV99	INV00
European Community		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Finland		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
France		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Germany		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Greece		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Hungary	INV00 (1985-1987)	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Iceland		NC2	NC2	NC2	NC2	NC2	NC2	no data	no data	no data
Ireland		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Italy		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Japan		INV99	INV99	INV99	INV99	INV99	INV99	INV99	INV99	no data
Latvia[c]		NC2	NC2	NC2	NC2	NC2	NC2	INV98	INV99	INV00
Liechtenstein		RPT95	no data	no data	no data	no data	no data	no data	no data	no data
Lithuania		NC1	no data	no data	no data	no data	INV99	INV99	INV99	INV00
Luxembourg		NC2	no data	no data	no data	NC2	NC2	no data	no data	no data
Monaco		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Netherlands		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
New Zealand[b]		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Norway		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Poland	NC2 (1988)	NC2	INV00	NC2	INV00	NC2	INV00	INV98	INV99	INV00
Portugal		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Romania	NC2 (1989)	NC2	NC2	NC2	NC2	NC2	no data	no data	no data	no data
Russian Federation		NC2	NC2	NC2	NC2	NC2	INV99	INV99	no data	no data
Slovakia		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Slovenia[d]	no data (1986)	NC1	no data	no data	no data	no data	no data	no data	no data	no data
Spain		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Sweden		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Switzerland[c]		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
Ukraine[c]		INV99	INV99	INV99	INV99	INV99	INV99	INV99	INV99	INV99
United Kingdom		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00
United States		INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00	INV00

[a] This table indicates the source of GHG emissions data as well as whether data were available for specific years. However, it does not indicate whether the inventory submitted for that year covers all gases, categories, etc.

[b] The Czech Republic provided revised CH_4 data for 1990 to 1996 in the inventory submission of 1999.

[c] Data for 1990 to 1998 are taken from the 2nd national communication and the supplemental inventory submission provided by the Party.

[d] A preliminary GHG inventory was submitted as part of the forthcoming 1st national communication.

NC1: First national communication
NC2: Second national communication
INV98: inventory submission 1998
INV99: inventory submission 1999
no data: data were not provided in the national communications or annual inventory submissions
INV00: inventory submission 2000
RPT95: Report submitted in 1995

Tables

General notes

The tables below contain numerical data on GHG inventories for 38 Annex I Parties as submitted in annual GHG emission inventories or national communications. They provide data for 1990-1998 for individual Annex I Parties, although the degree of coverage varies. This is due to differences in the coverage of years in the annual inventory submissions of Parties, as well as to lack of information in some instances.

The tables provide inventory data on carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), ozone precursors and sulphur dioxide (SO_2), and include information on international bunkers. Information on land-use change and forestry is included in aggregate estimates, and separately from other CO_2 estimates, recognizing the ongoing methodological work by the Intergovernmental Panel on Climate Change (IPCC) in this sector. To present information on HFCs, PFCs, SF_6 and aggregate greenhouse gases in a comparable manner the secretariat has used IPCC 1995 global warming potentials (GWPs) to present information in terms of CO_2 equivalents. The footnotes to the tables should be treated as an integral part of the tables.

Tables A.1 and A.2 contain information on aggregate emissions of all greenhouse gases combined (expressed as CO_2 equivalent) for the major source categories. Inventory data on the individual greenhouse gases are presented in tables A.3-A.19. As not all Annex I Parties provided data for 1998 (the most recent year included in this document), no totals or percentage contribution by sector are given for that year in tables A.1-A.9. The trends in total greenhouse gases and in emissions of the various gases, and for the most important sectors for 1990 to 1998, are given in tables B.1 to B.17. Emission estimates reported by the European Community are presented in tables C.1 to C.9.

It should be noted that figures may differ slightly from those submitted to the secretariat as a result of rounding during data input and processing, corrections of typographical and calculation errors or omissions, and the presentation (for consistency and comparability) of subtotals and totals not provided in the annual inventory submissions, communications or other submissions.

Explanatory notes

Blanks in the tables signify an absence of quantitative information. The secretariat has chosen to leave the spaces blank in order not to complicate the reading of the tables. The figure "zero" appears in the table only when clearly reported as such by Parties.

The IPCC 1996 Revised Guidelines for National Greenhouse Gas Inventories are referred to in this document as the IPCC Guidelines, and the guidelines for the preparation of national communications by Parties included in Annex I (FCCC/CP/1999/7) as the UNFCCC guidelines. Categories of sources of GHG emissions or their sinks corresponding to the IPCC Guidelines or UNFCCC guidelines nomenclature are given in *italics*.

The following chemical symbols and abbreviations have been used:

CF_4	perfluoromethane
C_2F_6	perfluoroethane
C_3F_8	perfluoropropane
C_4F_{10}	perfluorobutane
C_6F_{14}	perfluorohexane
CH_4	metnane
CO	carbon monoxide
CO_2	carbon dioxide
HFCs	hydrofluorocarbons
N_2O	nitrous oxide
NO_x	nitrogen oxides
NMVOCs	non-methane volatile organic compounds
PFCs	perfluorocarbons
SF_6	sulphur hexafluoride
SO_2	sulphur dioxide

The following units of mass have been used:

Gg	gigagram (10^9 grams)
Mg	megagram (10^6 grams)

The following other abbreviations have been used:

GHG	greenhouse gas
GWP	global warming potential

Table A.1. **Aggregate emissions and removals of all greenhouse gases[a] (CO_2 equivalent) by source/sink category, including and excluding land-use change and forestry, 1990 (Gigagrams and percentage of total by Party)**

	Fuel combustion		Fugitive fuel		Industrial processes		Agriculture		Other[b]		Total (excluding land-use change and forestry)[c]	Land-use change and forestry[d] (CO_2)	Total (including land-use change and forestry)[e]	Percentage increase or decrease in emissions with the inclusion of land-use change and forestry
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg) (A)	(B)	(C=A+B)	(%) (B/A)*100
Australia	270 033	63.8	29 536	7.0	12 044	2.8	90 594	21.4	21 030	5.0	423 237	70 092	488 503	16.6
Austria	47 701	63.2	2 228	3.0	12 933	17.1	5 591	7.4	6 999	9.3	75 452	-9 215	66 237	-12.2
Belgium	106 605	78.1	917	0.7	12 775	9.4	11 379	8.3	4 787	3.5	136 463	-2 057	134 406	-1.5
Bulgaria[f]	100 401	63.9	5 430	3.5	10 841	6.9	23 514	15.0	16 903	10.8	157 090	-4 657	152 433	-3.0
Canada	429 775	70.3	37 928	6.2	53 065	8.7	68 048	11.1	22 953	3.8	611 770	-39 141	563 783	-6.4
Czech Republic	167 518	88.2	8 276	4.4	6 734	3.5	5 001	2.6	2 309	1.2	189 837	-2 281	187 556	-1.2
Denmark	52 308	75.2	501	0.7	1 006	1.4	14 308	20.6	1 442	2.1	69 567	-916	68 651	-1.3
Estonia	37 679	92.5			613	1.5	1 543	3.8	897	2.2	40 719	-11 317	29 402	-27.8
Finland	56 018	74.5	3 569	4.7	2 864	3.8	8 262	11.0	4 491	6.0	75 202	-23 798	51 349	-31.6
France	364 928	65.9	10 874	2.0	56 725	10.2	90 572	16.4	30 680	5.5	553 778	-59 617	486 518	-10.8
Germany	1 002 671	82.9	32 781	2.7	62 011	5.1	69 709	5.8	41 628	3.4	1 208 807	-33 719	1 166 158	-2.8
Greece[g]	79 701	75.7	928	0.9	9 701	9.2	12 262	11.6	2 752	2.6	105 346		104 043	0.0
Hungary[f]	82 862	81.5	9 414	9.3	3 587	3.5	5 790	5.7			101 633	-3 097	98 536	-3.0
Iceland[g]	1 690	65.6	79	3.1	445	17.3	322	12.5	40	1.5	2 576		2 571	0.0
Ireland	30 668	57.3	127	0.2	2 966	5.5	17 890	33.4	1 846	3.5	53 497	-5 020	48 477	-9.4
Italy	413 382	79.7	9 647	1.9	35 705	6.9	43 156	8.3	16 612	3.2	518 502	-25 614	492 101	-4.9
Japan	1 060 838	87.4	3 491	0.3	105 469	8.7	20 552	1.7	22 913	1.9	1 213 262	-83 903	1 091 119	-6.9
Latvia	24 341	68.2	1 118	3.1	563	1.6	9 157	25.7	491	1.4	35 669	-10 826	24 843	-30.4

Liechtenstein											260	-22	238	-8.5
Lithuania	37 737	73.2	548	1.1	2 641	5.1	7 143	13.9	3 480	6.8	51 548	-8 848	42 700	-17.2
Luxembourg	12 181	90.6	34	0.3	585	4.4	518	3.9	130	1.0	13 448	-295	13 153	-2.2
Monaco[8]	108	97.3							3	2.7	111		111	0.0
Netherlands	162 038	73.8	4 175	1.9	20 722	9.5	17 487	8.0	13 666	6.2	217 882	-1 500	207 396	-0.7
New Zealand	22 913	31.2	1 179	1.6	2 934	4.1	42 851	58.6	3 230	4.4	73 068	-21 530	50 932	-29.5
Norway	26 989	51.7	2 256	4.3	13 855	26.6	4 989	9.5	4 132	7.9	52 141	-9 590	37 326	-18.4
Poland[7]	466 155	82.6	26 261	4.7	20 110	3.6	31 453	5.6	20 307	3.6	564 286	-35 786	529 540	-6.2
Portugal	40 471	63.4	256	0.4	4 289	6.7	8 939	14.0	9 906	15.5	63 858	-3 994	59 864	-6.3
Romania[7]	191 757	72.4	29 742	11.2	17 150	6.5	21 170	8.0	5 061	1.9	264 879	-2 925	261 954	-1.1
Russian Federation	2 308 494	75.9	424 000	13.9	88 525	2.9	168 260	5.5	50 783	1.7	3 040 062	-392 000	2 606 767	-12.9
Slovakia	57 308	75.1	2 556	3.3	6 398	8.4	7 976	10.5	2 073	2.7	76 304	-2 426	73 606	-3.2
Slovenia	13 594	70.9	1 061	5.5	681	3.5	2 337	12.2	1 601	8.3	19 212	-2 293	16 919	-11.9
Spain	211 160	69.3	4 875	1.6	23 652	7.7	53 241	17.6	13 018	4.3	305 746	-29 252	272 667	-9.6
Sweden	58 117	78.0	53	0.1	4 623	6.7	8 585	12.3	2 061	3.0	69 399	-34 368	35 031	-49.5
Switzerland	40 206	75.9	363	0.7	3 471	6.5	6 032	11.4	2 933	5.5	53 005	-4 343	48 662	-8.2
Ukraine	678 904	73.8	130 816	14.2	38 816	4.2	56 018	6.1	18 836	2.0	919 220	-52 107	867 113	-5.7
United Kingdom	565 329	76.2	40 659	5.5	57 501	7.8	52 916	7.1	25 086	3.4	741 489	21 186	748 298	2.9
United States	4 918 758	81.3	295 293	4.1	177 207	2.9	673 007	7.8	234 525	3.9	6 048 786	-1 159 994	4 803 350	-19.2
Total	14 133 168	77.9	1 070 764	5.9	573 033	4.8	1 460 490	8.0	609 808	3.4	18 187 110	-1 984 133	15 932 318	-10.9

[a] Aggregate emissions of CO_2, CH_4 and N_2O, and HFCs, PFCs and SF_6, where reported (see table A.13), using 1995 IPCC global warming potentials.
[b] Includes *solvent use*, *waste*, *other* and CH_4 and N_2O from *land-use change and forestry*.
[c] Aggregate emissions of all greenhouse gases excluding CO_2 emissions and removals from *land-use change and forestry*.
[d] CO_2 estimates for *land-use change and forestry* as reported in accordance with the present IPCC Guidelines for National Greenhouse Gas Inventories (see table D.8).
[e] Aggregate emissions of all greenhouse gases including CO_2 emissions from *land-use change and forestry*.
[f] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).
[g] The Party did not provide any estimates from the *land-use change and forestry* sector in its national inventory.

Table A.2. **Aggregate emissions and removals of all greenhouse gases[a] (CO_2 equivalent) by source/sink category, including and excluding land-use change and forestry, 1998 (Gigagrams and percentage of total by Party)**

	Fuel combustion		Fugitive fuel		Industrial processes		Agriculture		Other[b]		Total (excluding land-use change and forestry)[c]	Land-use change and forestry[d] (CO_2)	Total (including land-use change and forestry)[e]	Percentage increase or decrease in emissions with the inclusion of land-use change and forestry
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg) (A)	(Gg) (B)	(Gg) (C=A+B)	(%) (B/A)*100
Australia	331 344	68.4	31 512	6.5	9 831	2.0	92 200	19.0	19 812	4.1	484 700	35 173	518 454	7.3
Austria	52 564	65.4	2 899	3.6	13 858	17.3	5 044	6.3	5 950	7.4	80 315	-7 633	70 915	-9.5
Belgium	116 998	80.5	759	0.5	12 828	8.8	10 708	7.4	4 079	2.8	145 372	-977	143 663	-0.7
Bulgaria	54 197	64.3	3 601	4.3	5 436	6.4	13 285	15.8	7 798	9.2	84 317	-6 233	77 438	-7.4
Canada	492 718	71.2	52 411	7.6	52 326	7.6	69 502	10.0	25 273	3.7	692 229	-21 833	661 973	-3.2
Czech Republic	126 345	85.5	6 323	4.3	3 942	2.7	7 933	5.4	3 234	2.2	147 777	-3 757	144 019	-2.5
Denmark	59 722	78.4	744	1.0	1 977	2.6	12 416	16.3	1 285	1.7	76 144	-973	74 630	-1.3
Estonia	19 048	87.6	614	2.8	342	1.6	1 004	4.6	752	3.5	21 756	-3 356	18 400	-15.4
Finland	60 340	79.1	3 554	4.7	2 617	3.4	7 062	9.3	2 743	3.6	76 315	-9 713	66 325	-12.7
France	395 833	70.8	8 958	1.6	41 503	7.4	87 162	15.6	25 264	4.5	558 726	-69 783	481 598	-12.5
Germany	875 530	85.9	21 966	2.2	44 875	4.4	58 716	5.8	18 658	1.8	1 019 745	-33 493	975 367	-3.3
Greece[f]	95 111	76.5	1 088	0.9	12 659	10.2	11 956	9.6	3 501	2.8	124 315		120 517	0.0
Hungary	55 462	66.3	8 390	10.0	3 134	3.7	13 170	15.7	3 522	4.2	83 677	-4 411	78 314	-5.3
Iceland														
Ireland	39 217	61.5	85	0.1	3 062	4.8	19 698	30.9	1 656	2.6	63 718	-6 448	57 269	-10.1
Italy	439 244	81.1	7 219	1.3	32 237	6.0	43 954	8.1	18 889	3.5	541 542	-23 634	515 768	-4.4
Japan														
Latvia	8 402	73.0	474	4.1	236	2.1	1 744	15.2	649	5.6	11 504	-10 508	995	-91.3
Liechtenstein														

Lithuania	14 207	59.6	365	1.5	5 399	22.6	2 255	9.5	1 625	6.8	23 851	7 712	31 563	32.3
Luxembourg									5	3.5	142		142	0.0
Monaco[f]	137	96.5												
Netherlands	179 591	76.0	3 952	1.7	22 345	9.5	17 166	7.3	13 198	5.6	236 251	-1 700	224 239	-0.7
New Zealand	25 995	34.7	1 573	2.1	3 208	4.3	41 186	55.0	2 924	3.9	74 886	-20 896	53 524	-27.9
Norway	32 582	58.0	2 566	4.6	11 586	20.6	5 091	9.1	4 323	7.7	56 148	-17 588	36 463	-31.3
Poland	330 262	82.1	17 357	4.3	14 677	3.6	21 898	5.4	18 282	4.5	402 477	-29 820	372 657	-7.4
Portugal	50 593	67.6	262	0.4	4 943	6.6	8 092	10.8	10 980	14.7	74 870	-4 674	70 196	-6.2
Romania														
Russian Federation														
Slovakia	39 424	74.6	2 562	4.9	4 923	9.3	4 211	8.0	1 698	3.2	52 819	-1 683	51 056	-3.2
Slovenia														
Spain	252 626	68.3	5 901	1.6	34 690	9.4	56 176	15.2	20 465	5.5	369 856	-29 252	331 229	-7.9
Sweden	55 735	75.5			8 497	11.5	8 218	11.1	1 392	1.9	73 842	-27 680	42 611	-37.5
Switzerland	41 962	78.1	335	0.6	3 002	5.6	5 461	10.2	2 947	5.5	53 707	-6 109	46 906	-11.4
Ukraine	298 907	65.7	92 132	20.3	18 613	4.1	27 096	6.0	18 176	4.0	454 934	-68 708	386 225	-15.1
United Kingdom	532 598	78.3	23 476	3.5	56 071	8.2	50 559	7.4	17 147	2.5	679 851	14 984	672 711	2.2
United States	5 475 334	81.4	225 722	3.4	245 198	3.6	540 679	8.0	240 064	3.6	6 726 997	-773 019	5 806 202	-11.5

[a] Aggregate emissions of CO_2, CH_4 and N_2O, and HFCs, PFCs and SF_6 where reported (see table A 13), using 1995 IPCC global warming potentials.
[b] Includes *solvent use*, *waste*, *other* and CH_4 and N_2O from *land-use change and forestry*.
[c] Aggregate emissions of all greenhouse gases excluding CO_2 emissions from *land-use change and forestry*.
[d] CO_2 estimates for *land-use change and forestry* as reported in accordance with the present IPCC Guidelines for National Greenhouse Gas Inventories (see table B.8).
[e] Aggregate emissions of all greenhouse gases including CO_2 emissions from *land-use change and forestry*.
[f] The Party did not provide any estimates from the *land-use change and forestry* sector in its national inventory.

Table A.3. **Anthropogenic CO_2 emissions by source category, excluding land-use change and forestry,[a] 1990 (Gigagrams and percentage of total by Party)**

	Energy				Industrial processes		Waste		Other[c]		Total
	Fuel combustion[b]		Fugitive fuel								
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	265 289	95.2	6 726	2.4	6 654	2.4					278 669
Austria	46 685	75.1	2 139	3.4	12 745	20.5	38	0.1	523	0.8	62 130
Belgium	104 190	91.4			9 140	8.0	667	0.6			113 997
Bulgaria[d]	95 495	91.9			8 361	8.1					103 856
Canada	415 690	89.3	9 833	2.1	32 724	7.0	254	0.1	7 255	1.6	465 755
Czech Republic	160 073	96.7			5 417	3.3					165 490
Denmark	51 516	97.4	240	0.5	1 006	1.9			132	0.2	52 894
Estonia	37 184	98.4			613	1.6					37 797
Finland	53 889	88.7	3 542	5.8	1 130	1.9			2 210	3.6	60 771
France	357 723	92.3	4 306	1.1	21 254	5.5	2 133	0.6	2 175	0.6	387 590
Germany	986 832	97.3			27 668	2.7					1 014 500
Greece	77 292	90.8			7 686	9.0			186	0.2	85 164
Hungary[d]	80 089	95.7			3 587	4.3					83 676
Iceland	1 674	77.9	79	3.7	391	18.2			4	4.2	2 147
Ireland	29 577	93.7			1 931	6.1			67	0.2	31 575
Italy	398 320	92.1	2 586	0.6	27 532	6.4	693	0.2	3 434	0.8	432 565
Japan	1 052 964	93.6			58 795	5.2	12 773	1.1			1 124 532
Latvia	24 209	97.7			563	2.3					24 771
Liechtenstein											208
Lithuania	37 332	94.4			2 203	5.6					39 535
Luxembourg	12 133	95.2			585	4.6	20	0.2	12	0.1	12 750
Monaco	106	98.1					2	1.9			108

Netherlands	159 040	98.6	420	0.3	1 900	1.2				161 360
New Zealand	22 397	88.2	615	2.4	2 386	9.4				25 398
Norway	26 370	75.0	1 877	5.3	6 548	18.6	37	0.1	314	0.9	35 146
Poland[d]	462 998	97.1	53	0.0	13 574	2.8					476 625
Portugal	39 020	90.5	153	0.4	3 678	8.5	18	0.0	264	0.6	43 132
Romania[d]	185 575	95.3			9 244	4.7	7	0.0			194 826
Russian Federation	2 298 900	96.9	27 100	1.1	46 300	2.0					2 372 300
Slovakia	56 691	91.1			5 546	8.9					62 237
Slovenia	13 294	95.4			641	4.6					13 935
Spain	205 673	91.0	1 536	0.7	16 667	7.4	992	0.4	1 188	0.5	226 057
Sweden	51 328	92.6	53	0.1	3 786	6.8			276	0.5	55 443
Switzerland	39 673	89.3	56	0.1	3 363	7.6	1 317	3.0			44 409
Ukraine	672 075	95.5	0	0.0	31 717	4.5					703 792
United Kingdom	557 666	95.5	11 908	2.0	13 988	2.4	659	0.1			584 220
United States	4 840 483	98.5	9 097	0.2	54 427	1.1	10 345	0.2			4 914 351
Total	13 919 445	96.0	82 318	0.6	443 747	3.1	29 955	0.2	18 041	0.1	14 493 712

[a] Emissions and removals from the *land-use change and forestry* sector were excluded from this table for comparison and consistency purposes. They are however presented in tables A.1, A.7 and B.8.
[b] For further details on *fuel combustion* see table A.5.
[c] Includes *solvent use* and *agriculture*.
[d] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

Table A.4. Anthropogenic CO_2 emissions by source category, excluding land-use change and forestry,[a] 1998 (Gigagrams and percentage of total by Party)

	Energy				Industrial		Waste		Other[c]		Total
	Fuel combustion[b]		Fugitive fuel								
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	324 203	95.9	5 929	1.8	7 823	2.3	17	0.0		0.0	337 973
Austria	51 389	77.2	2 784	4.2	11 919	17.9	116	0.2	396	0.6	66 604
Belgium	114 501	93.9			7 375	6.0	38	0.0	61	0.0	121 975
Bulgaria	51 388	93.2			3 762	6.8					55 150
Canada	476 426	90.0	13 787	2.6	38 066	7.2	277	0.1	875	0.2	529 431
Czech Republic	124 486	97.1	417	0.3	2 661	2.1	357	0.3	347	0.3	128 268
Denmark	58 147	96.7	421	0.7	1 436	2.4			121	0.2	60 125
Estonia	18 890	98.2		0.0	342	1.8					19 232
Finland	57 404	89.8	3 524	5.5	921	1.4			2 096	3.3	63 945
France	386 359	93.6	4 145	1.0	18 009	4.4	2 386	0.6	1 962	0.5	412 860
Germany	861 181	97.2			25 000	2.8					886 181
Greece	91 968	91.6			8 300	8.3			181	0.2	100 449
Hungary	54 621	94.8			2 152	3.7	800	1.4	28	0.0	57 601
Iceland											
Ireland	37 707	94.2			2 250	5.6			62	0.2	40 019
Italy	430 295	93.7	1 225	0.3	23 682	5.2	741	0.2	3 517	0.8	459 461
Japan											
Latvia	8 051	97.2			236	2.8					8 287
Liechtenstein											
Lithuania	13 982	83.8			2 525	15.1	187	1.1			16 694
Luxembourg											
Monaco	134	97.3					4	2.7			138
Netherlands	176 760	97.5	810	0.4	1 500	0.8	2 300	1.3			181 370
New Zealand	25 531	88.2	670	2.3	2 740	9.5					28 941
Norway	31 644	75.9	1 933	4.6	7 777	18.7	39	0.1	307	0.7	41 700

Poland	326 858	96.9	105		10 487	3.1				337 450
Portugal	49 063	91.0	201	0.4	4 330	8.0	25	0.0	271	0.5	53 891
Romania										
Russian Federation										
Slovakia	39 001	89.1			4 770	10.9				43 772
Spain	245 698	90.0	2 113	0.8	23 058	8.4	798	0.3	1 350	0.5	273 017
Sweden	52 718	92.6			4 124	7.2			111	0.2	56 953
Switzerland	41 138	91.8	73	0.2	2 204	4.9	1 394	3.1			44 809
Ukraine	298 489	94.9	0	0.0	15 956	5.1					314 445
United Kingdom	522 888	95.7	7 984	1.5	15 518	2.8					546 390
United States	5 383 502	98.3	14 214	0.3	67 447	1.2	12 889	0.2			5 478 051

[a] Emissions and removals from the *land-use change and forestry* sector were excluded from this table for comparison and consistency purposes. They are however presented in tables A.2, A.8 and B.8.
[b] For further details on *fuel combustion* see table A.6.
[c] Includes *solvent use* and *agriculture*.

Table A.5. Anthropogenic CO_2 emissions from fuel combustion, 1990 (Gigagrams and percentage of total by Party)

	Energy industries		Industry		Commercial, institutional, residential, agriculture, forestry, fishing		Transport		Other[a]		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	141 807	53.5	50 029	18.9	12 486	4.7	59 288	22.3	1 680	0.6	265 289
Austria	12 377	26.5	7 434	15.9	13 305	28.5	13 570	29.1			46 685
Belgium	31 896	30.6	25 758	24.7	25 967	24.9	20 569	19.7			104 190
Bulgaria[b]	37 823	39.6	35 756	37.4	7 612	8.0	12 639	13.2	1 666	1.7	95 495
Canada	144 599	34.8	56 067	13.5	69 190	16.6	145 833	35.1			415 690
Czech Republic	94 090	58.8	23 104	14.4	35 948	22.5	7 959	5.0			160 073
Denmark	26 216	50.9	5 776	11.2	8 664	16.8	10 741	20.9	119	0.2	51 516
Estonia	28 461	76.5	2 897	7.8	3 169	8.5	2 656	7.1			37 184
Finland	18 513	34.4	14 358	26.6	7 571	14.0	12 475	23.1	972	1.8	53 889
France	65 495	18.3	76 919	21.5	94 026	26.3	121 282	33.9			357 723
Germany	412 896	41.8	196 457	19.9	203 439	20.6	162 281	16.4	11 760	1.2	986 832
Greece	43 658	56.5	10 107	13.1	8 168	10.6	15 358	19.9			77 292
Hungary[b]	36 928	46.1	10 893	13.6	23 174	28.9	7 741	9.7	1 353	1.7	80 089
Iceland	4	0.2	243	14.5	704	42.1	721	43.1	2	0.1	1 674
Ireland	11 057	37.4	3 833	13.0	9 726	32.9	4 961	16.8			29 577
Italy	142 927	35.9	83 220	20.9	75 553	19.0	95 616	24.0	1 004	0.3	398 320
Japan	339 065	32.2	339 378	32.2	158 298	15.0	205 633	19.5	10 591	1.0	1 052 964
Latvia	9 530	39.4	2 683	11.1	6 142	25.4	5 829	24.1	25	0.1	24 209
Liechtenstein											
Lithuania	16 425	44.0	5 396	14.5	6 810	18.2	5 791	15.5	2 910	7.8	37 332
Luxembourg	1 883	15.5	6 353	52.4	1 272	10.5	2 625	21.6			12 133
Monaco	37	35.0			29	27.8	39	37.2			106
Netherlands	52 550	33.0	41 440	26.1	35 360	22.2	28 560	18.0	1 130	0.7	159 040
New Zealand	6 079	27.1	4 812	21.5	2 845	12.7	8 660	38.7			22 397

Norway	7 382	28.0	3 010	11.4	3 875	14.7	11 646	44.2	457	1.7	26 370
Poland[b]	260 537	56.3	60 900	13.2	111 229	24.0	28 238	6.1	2 094	0.5	462 998
Portugal	15 905	40.8	8 103	20.8	3 599	9.2	11 404	29.2	8	0.0	39 020
Romania[b]	89 214	48.1	56 678	30.5	28 274	15.2	7 893	4.3	3 517	1.9	185 575
Russian Federation											2 298 900
Slovakia	51 621	91.1					5 070	8.9			56 691
Slovenia	6 483	48.8	2 488	18.7	1 144	8.6	3 179	23.9			13 294
Spain	74 783	36.4	48 817	23.7	24 070	11.7	58 004	28.2			205 673
Sweden	8 849	17.2	13 050	25.4	10 672	20.8	18 650	36.3	107	0.2	51 328
Switzerland	891	2.2	5 237	13.2	18 631	47.0	14 144	35.7	770	1.9	39 673
Ukraine											672 075
United Kingdom	229 142	41.1	94 504	16.9	112 032	20.1	116 721	20.9	5 265	0.9	557 666
United States[c]	1 747 763	36.1	1 047 111	21.6	549 330	11.3	1 413 363	29.2	82 916	1.7	4 840 483
Total[d]	4 166 887	35.9	2 342 812	20.2	1 672 315	14.4	2 639 139	22.7	128 345	1.1	13 919 445

[a] All remaining emissions from non-specific fuel combustion including emissions from military fuel use.

[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

[c] *Fuel combustion* emissions from territories of the United States are included under *other*.

[d] The percentage of the total accounted for by each category has been calculated on the basis of the overall total excluding the Russian Federation and Ukraine (11 620 545 Gg) since data for the individual categories were not provided. However, the total for all the Parties given in the last column (13 919 445 Gg) does include the Russian Federation and Ukraine.

Table A.6. Anthropogenic CO_2 emissions from fuel combustion, 1998 (Gigagrams and percentage of total by Party)

	Energy industries		Industry		Commercial, institutional, residential, agriculture, forestry, fishing		Transport		Other[a]		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	187 222	57.7	51 346	15.8	14 801	4.6	68 434	21.1	2 400	0.7	324 203
Austria	11 642	22.7	8 147	15.9	14 847	28.9	16 753	32.6			51 389
Belgium	27 287	23.8	30 759	26.9	31 757	27.7	24 697	21.6			114 501
Bulgaria	27 521	53.6	14 354	27.9	2 989	5.8	6 475	12.6	49	0.1	51 388
Canada	181 201	38.0	53 129	11.2	67 845	14.2	174 252	36.6			476 426
Czech Republic	58 705	47.2	35 376	28.4	18 480	14.8	10 779	8.7	1 146	0.9	124 486
Denmark	31 506	54.2	6 020	10.4	8 088	13.9	12 421	21.4	111	0.2	58 147
Estonia	15 731	83.3	666	3.5	1 256	6.7	1 236	6.5			18 890
Finland	21 395	37.3	15 282	26.6	6 659	11.6	12 299	21.4	1 770	3.1	57 404
France	67 863	17.6	77 437	20.0	103 072	26.7	137 987	35.7			386 359
Germany	344 207	40.0	142 026	16.5	191 163	22.2	180 874	21.0	2 911	0.3	861 181
Greece	50 612	55.0	10 953	11.9	10 612	11.5	19 790	21.5			91 968
Hungary	23 031	42.2	9 759	17.9	13 451	24.6	8 381	15.3			54 621
Iceland											
Ireland	15 047	39.9	3 917	10.4	9 974	26.5	8 768	23.3			37 707
Italy	154 457	35.9	85 630	19.9	77 669	18.1	110 167	25.6	2 372	0.6	430 295
Japan											
Latvia	3 543	44.0	1 275	15.8	1 048	13.0	2 126	26.4	59	0.7	8 051
Liechtenstein											
Lithuania	7 923	56.7	964	6.9	1 340	9.6	3 754	26.9			13 982
Luxembourg											
Monaco	54	40.4			35	25.9	45	33.8			134
Netherlands	58 480	33.1	43 810	24.8	36 120	20.4	34 720	19.6	3 630	2.1	176 760

New Zealand	5 262	20.6	5 977	23.4	2 857	11.2	11 435	44.8			25 531
Norway	10 025	31.7	4 038	12.8	3 469	11.0	13 752	43.5	360	1.1	31 644
Poland	184 916	56.6	63 186	19.3	50 103	15.3	28 127	8.6	526	0.2	326 858
Portugal	18 736	38.2	9 327	19.0	4 821	9.8	16 181	33.0			49 063
Romania											
Russian Federation											
Slovakia	27 868	71.5			6 183	15.9	4 950	12.7			39 001
Slovenia											
Spain	79 161	32.2	60 058	24.4	28 089	11.4	78 390	31.9			245 698
Sweden	9 728	18.5	12 200	23.1	9 615	18.2	21 140	40.1	36	0.1	52 718
Switzerland	1 423	3.5	4 893	11.9	19 401	47.2	14 690	35.7	731	1.8	41 138
Ukraine											298 489
United Kingdom	189 846	36.3	88 579	16.9	118 320	22.6	122 899	23.5	3 244	0.6	522 888
United States[b]	2 016 379	37.5	1 100 141	20.4	570 707	10.6	1 607 581	29.9	88 693	1.6	5 383 502

[a] All remaining emissions from non-specific fuel combustion including emissions from military fuel use.
[b] *Fuel combustion* emissions from territories of the United States are included under *other*.

Table A.7. Anthropogenic CO_2 emissions and removals from land-use change and forestry[a], 1990 (Gigagrams)

	Changes in forest and other woody biomass stocks	Forest and grassland conversion	Abandonment of managed lands	CO_2 emissions and removals from soil	Other	Total
Australia[b]	-24 436	120 191		-4 224	-21 439	70 092
Austria	-9 215					-9 215
Belgium	-2 057					-2 057
Bulgaria	-4 657					-4 657
Canada[c]	-45 224	1 419	-3 245	3 526	4 383	-39 141
Czech Republic	-2 281					-2 281
Denmark	-916					-916
Estonia	-9 428	538	-2 427			-11 317
Finland	-23 798					-23 798
France	-75 330	11 710	-48	4 051		-59 617
Germany	-33 719					-33 719
Greece						
Hungary	-3 097					-3 097
Iceland						
Ireland	-5 381			361		-5 020
Italy	-27 077	2 152	-74	-615		-25 614
Japan	-84 482	579				-83 903
Latvia	-10 960			134		-10 826
Liechtenstein[d]						-22
Lithuania	-10 375	2 803	-1 276			-8 848
Luxembourg	-295					-295
Monaco						
Netherlands	-1 500					-1 500
New Zealand	-22 199	669				-21 530
Norway	-9 590					-9 590
Poland	-24 990	959	-10 715			-34 746
Portugal[e]	-2 082	-1 912				-3 994

Romania	-2 925					-2 925
Russian Federation	-392 000					-392 000
Slovakia	-401	141	-1 352	-814		-2 426
Slovenia	-3 072	1 480	-702			-2 293
Spain	-29 252					-29 252
Sweden	-34 368					-34 368
Switzerland	-4 343					-4 343
Ukraine[4]						-52 107
United Kingdom[5]	-7 304			25 682	2 808	21 186
United States[6]	-501 857			-569 067	-89 070	-1 159 994
Total	-1 408 611	140 729	-19 838	-540 966	-103 318	-1 984 133

[a] In this table negative values indicate net removal of CO_2 from the respective category.
[b] *Other* includes regrowth associated with land clearing and prescribed burning of forests and wildfire.
[c] *Other* includes emissions from anthropogenic fires outside the wood production forest.
[d] Party only reported a total for the land use change and forestry sector.
[e] Estimate for *forest and grassland conversion* includes *abandonment of managed lands*.
[f] *Other* includes emissions from changes in crop biomass, peat extraction, lowland drainage, and upland drainage.
[g] *Other* includes landfilled yard trimmings and landfilled wood products.

Table A.8. Anthropogenic CO_2 emissions and removals from land-use change and forestry[a], 1998 (Gigagrams)

	Changes in forest and other woody biomass stocks	Forest and grassland conversion	Abandonment of managed lands	CO_2 emissions and removals from soil	Other	Total
Australia[b]	-21 649	78 576		-4 224	-17 530	35 173
Austria	-7 633					-7 633
Belgium[c]	1 506			876	-3 360	-977
Bulgaria	-6 233					-6 233
Canada[d]	-33 030	3 924	-4 008	5 261	6 020	-21 833
Czech Republic	-3 757					-3 757
Denmark	-973					-973
Estonia	-2 891	18	-1 260	777		-3 356
Finland	-9 713					-9 713
France	-85 539	12 540	-48	3 264		-69 783
Germany	-33 493					-33 493
Greece						
Hungary	-6 102	1 488		203		-4 411
Iceland						
Ireland	-6 872			423		-6 448
Italy	-26 230	881	-138	1 853		-23 634
Japan						
Latvia	-10 600			92		-10 508
Liechtenstein						
Lithuania	-8 623	17 370	-1 035			7 712
Luxembourg						
Monaco						
Netherlands	-1 700					-1 700
New Zealand	-21 669	773				-20 896
Norway	-17 588					-17 588
Poland	-19 151	87	-7 881	-2 876		-29 820
Portugal[e]	-2 744	-1 930				-4 674

Romania						
Russian Federation						
Slovakia	63	252	-1 407	-592		-1 683
Slovenia						
Spain	-29 252					-29 252
Sweden	-27 680					-27 680
Switzerland	-6 109					-6 109
Ukraine[f]						-68 708
United Kingdom[g]	-8 184			20 741	2 427	14 984
United States[h]	-377 190			-316 250	-79 579	-773 019

[a] In this table *negative* values indicate net removal of CO_2 from the respective category.
[b] *Other* includes regrowth associated with land clearing and prescribed burning of forests and wildfire.
[c] Emissions reported as *other* not specified.
[d] *Other* includes emissions from anthropogenic fires outside the wood production forest.
[e] Estimate for *forest and grassland conversion* includes *abandonment of managed lands*.
[f] Party only reported a total for the *land-use change and forestry* sector.
[g] *Other* includes emissions from changes in crop biomass, peat extraction, lowland drainage, and upland drainage.
[h] *Other* includes landfilled yard trimmings and landfilled wood products.

Table A.9. **Anthropogenic CH_4 emissions by source category, 1990 (Gigagrams and percentage of total by Party)**

	Energy				Agriculture				Waste				
	Fuel combustion		Fugitive fuel		Livestock[a]		Other[b]				Other[c]		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	110	2.0	1 085	19.4	3 140	56.3	278	5.0	708	12.7	257	4.6	5 577
Austria	20	3.8	4	0.8	182	33.8	36	6.6	295	54.9	0	0.0	538
Belgium	9	1.5	35	5.8	367	59.9	15	2.4	174	28.4	13	2.1	612
Bulgaria[d]	8	0.6	259	19.4	265	19.9	8	0.6	791	59.3	3	0.2	1 334
Canada	258	7.3	1 338	37.8	980	27.7			900	25.4	66	1.9	3 542
Czech Republic	59	7.6	394	50.6	204	26.2			105	13.5	16	2.1	779
Denmark	11	3.9	12	4.5	193	69.2			62	22.4			278
Estonia[e]	3	2.5			60	57.2			42	40.3	0	0.3	105
Finland	19	6.6	1	0.4	92	31.5			175	60.1	4	1.4	291
France	159	5.3	311	10.3	1 599	52.9	31	1.0	820	27.1	102	3.4	3 022
Germany	214	3.8	1 561	28.0	1 878	33.7	24	0.4	1 894	34.0			5 571
Greece	15	3.2	44	9.8	163	36.2	107	23.7	122	27.1			452
Hungary[d]	8	1.2	448	67.5	205	30.8	4	0.6					664
Iceland	0	1.4			12	85.0			2	13.6			14
Ireland	6	1.0	6	1.0	514	84.1			85	13.9			611
Italy	60	3.1	336	17.7	836	44.0	74	3.9	581	30.6	12	0.7	1 899
Japan	89	5.8	166	10.8	464	30.1	378	24.5	394	25.6	51	3.3	1 543
Latvia	2	1.3	53	28.6	111	59.7			19	10.4			186
Liechtenstein													1
Lithuania	5	1.4	26	6.9	181	47.8			166	43.8	0	0.1	378
Luxembourg	1	3.2	2	6.8	18	73.9			4	16.1			24
Monaco	0	56.3							0	43.7			0
Netherlands	35	2.7	179	13.8	505	39.1			568	44.0	5	0.4	1 292
New Zealand	11	0.6	27	1.6	1 492	89.0	0	0.0	143	8.5	4	0.3	1 677
Norway	13	4.2	18	5.7	100	31.9			182	57.9	1	0.3	315

Poland[d]	47	1.5	1 248	39.7	862	27.4			966	30.8	17	0.5	3 141
Portugal	24	3.4	5	0.7	288	41.8	13	1.9	306	44.4	54	7.8	690
Romania[d]	50	2.1	1 416	60.1	600	25.5	34	1.5	241	10.2	16	0.7	2 357
Russian Federation	200	0.8	18 900	71.3	4 930	18.6	130	0.5	1 940	7.3	400	1.5	26 500
Slovakia	17	4.8	122	33.4	135	37.2			86	23.8	3	0.9	364
Slovenia	7	3.8	51	28.7	44	24.8	0	0.1	76	42.9	1	0.3	176
Spain	58	3.5	158	9.6	924	56.1	15	0.9	491	29.8	3	0.2	1 649
Sweden	40	13.9			160	56.2			85	29.9			284
Switzerland	7	3.0	15	6.0	151	62.4			69	28.4	0	0.2	242
Ukraine[e]	36	0.4	6 220	66.2	2 254	24.0			892	9.5			9 402
United Kingdom	119	3.2	1 369	37.2	1 025	27.9	13	0.3	1 150	31.3	1		3 677
United States	661	2.1	11 247	36.2	8 325	26.8	444	1.4	10 321	33.2	57	0.2	31 054
Total	2 380	2.2	47 056	42.7	33 260	30.2	1 605	1.5	24 855	22.5	1 087	1.0	110 242

[a] Includes *enteric fermentation* and *manure management*.
[b] Includes *rice cultivation*, *agricultural soils*, *prescribed burning of savannas* and *field burning of agricultural residues*.
[c] Includes *industrial processes*, *solvent use* and *land-use change and forestry*.
[d] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[e] Total emissions from agriculture are reported under livestock since emissions were not further disaggregated by the Party.

Table A.10. Anthropogenic CH_4 emissions by source category, 1998 (Gigagrams and percentage of total by Party)

	Energy				Agriculture				Waste				
	Fuel combustion		Fugitive fuel		Livestock[a]		Other[b]				Other[c]		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	116	2.1	1 217	21.8	2 970	53.1	376	6.7	737	13.2	180	3.2	5 596
Austria	14	3.1	6	1.2	157	34.2	35	7.6	248	53.9	0	0.0	459
Belgium	9	1.5	36	6.2	336	57.9	14	2.5	184	31.6	2	0.3	581
Bulgaria	4	0.6	171	26.2	111	17.0	2	0.4	362	55.4	3	0.4	654
Canada	245	5.8	1 839	43.2	1 097	25.8			1 038	24.3	42	1.0	4 261
Czech Republic	23	4.3	281	53.1	121	22.9			98	18.6	6	1.2	529
Denmark	33	11.4	15	5.3	184	64.0			55	19.3			287
Estonia	5	5.4	29	29.0	30	30.1			36	35.5	0	0.0	101
Finland	22	11.0	1	0.7	81	40.8			89	45.2	5	2.4	198
France	169	6.5	228	8.8	1 504	58.2	31	1.2	549	21.2	104	4.0	2 584
Germany	88	2.5	1 046	30.0	1 530	43.9	26	0.7	794	22.8			3 484
Greece	21	4.0	52	10.2	170	33.4	108	21.3	158	31.1			509
Hungary	32	4.8	400	58.9	115	16.9	2	0.3	128	18.9	2	0.2	679
Iceland													
Ireland	5	0.8	4	0.6	564	86.9			76	11.7			649
Italy	93	4.7	285	14.5	811	41.2	82	4.2	686	34.8	13	0.7	1 970
Japan													
Latvia	11	11.6	23	23.3	36	37.0			27	28.1	0	0.0	97
Liechtenstein													
Lithuania[d]	8	4.5	17	9.8	83	47.0			68	38.7	0	0.0	177
Luxembourg													
Monaco	0	59.8							0	40.2			0
Netherlands	30	2.8	150	14.0	435	40.8			446	41.9	5	0.4	1 065
New Zealand	11	0.7	43	2.7	1 406	88.3	0	0.0	126	7.9	6	0.4	1 592
Norway	15	4.3	30	8.7	110	31.7			190	55.0	1	0.3	346

Poland	53	2.3	822	35.2	580	24.9	1	0.1	870	37.3	9	0.4	2 335
Portugal	20	2.9	3	0.4	263	38.6	9	1.3	339	49.7	49	7.1	683
Romania													
Russian Federation													
Slovakia	8	2.9	122	45.4	66	24.4			73	27.3			269
Slovenia													
Spain	54	2.6	178	8.6	981	47.2	18	0.9	842	40.5	3	0.2	2 077
Sweden	35	13.8			159	62.3			61	23.8	0	0.1	256
Switzerland	6	2.7	12	5.7	137	62.4			64	29.0	0	0.2	220
Ukraine[d]	14	0.2	4 387	67.9	1 196	18.5			859	13.3	0	0.0	6 457
United Kingdom	94	3.6	738	28.0	995	37.7			809	30.7	1	0.0	2 636
United States	627	2.0	10 072	31.9	9 875	31.3	511	1.6	10 431	33.0	78	0.2	31 593

[a] Includes *enteric fermentation* and *manure management*.
[b] Includes *rice cultivation*, *agricultural soils*, *prescribed burning of savannas* and *field burning of agricultural residues*.
[c] Includes *industrial processes*, *solvent use* and *land-use change and forestry*.
[d] Total emissions from agriculture are reported under *livestock* since emissions were not further disaggregated by the Party.

Table A.11. Anthropogenic N_2O emissions by source category, 1990 (Gigagrams and percentage of total by Party)

	Energy				Industrial processes		Agriculture		Waste				
	Transport		Other[a]								Other[b]		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	5.3	7.2	2.7	3.7	1.6	2.2	60.7	83.2			2.6	3.6	73.0
Austria	1.0	16.0	0.8	12.9	0.6	9.1	3.3	50.4	0.0	0.1	0.8	11.4	6.6
Belgium	0.6	2.1	7.1	22.9	11.5	37.1	10.9	35.1	0.1	0.3	0.8	2.6	31.0
Bulgaria[c]	0.2	0.3	15.0	18.5	7.8	9.6	57.4	70.5	0.9	1.1			81.4
Canada	20.8	10.3	7.2	3.5	37.1	18.3	129.7	64.0	3.0	1.5	4.9	2.4	202.6
Czech Republic	0.8	3.1	19.2	74.4	3.3	12.8	2.3	8.9			0.2	0.8	25.8
Denmark	0.5	1.3	1.4	3.9			33.1	94.8					34.9
Estonia		1.6	1.4	60.0			0.9	39.1					2.3
Finland	2.1	7.7	3.5	13.2	5.1	19.3	15.4	57.7	0.4	1.3	0.2	0.8	26.6
France	4.0	1.3	8.6	2.8	89.6	29.2	181.7	59.2	3.1	1.0	19.7	6.4	306.7
Germany	10.3	4.7	26.3	11.9	82.0	37.2	96.0	43.5			6.0	2.7	220.6
Greece	0.7	2.2	6.1	20.2	2.3	7.6	21.2	70.0					30.3
Hungary[c]			8.4	64.7			4.6	35.3					12.9
Iceland	0.0	4.8	0.0	4.8	0.2	38.1	0.2	52.4					0.4
Ireland	0.3	0.9	2.8	9.6	3.3	11.4	22.9	78.0					29.3
Italy	3.7	2.5	40.9	28.0	23.5	16.1	77.6	53.1	0.3	0.2	0.1	0.0	146.0
Japan	12.9	22.1	6.4	11.0	23.9	41.0	9.3	15.9	4.9	8.4	0.9	1.6	58.4
Latvia	0.1	0.5	0.2	0.7			22.0	97.6	0.3	1.2			22.5
Liechtenstein													0.1
Lithuania	0.2	1.4	0.8	5.8	1.4	10.6	10.8	82.1					13.2
Luxembourg		6.9	0.1	9.3			0.5	74.9	0.0	3.5	0.0	5.4	0.6
Monaco		24.1		43.9					0.0	31.9			0.0
Netherlands	6.6	10.0	0.7	1.1	31.5	47.9	22.2	33.7	0.5	0.8	4.3	6.5	65.8
New Zealand	0.4	1.0	0.3	0.7			37.1	97.1	0.4	1.2	0.0	0.1	38.2

Norway	0.6	3.9	0.3	2.0	6.7	39.9	8.6	51.7	0.3	1.8	0.1	0.7	16.6
Poland[c]	1.0	1.4	6.0	8.6	2	28.6	43.0	61.4					7
Portugal	0.4	2.2	2.6	13.0	1.9	9.7	8.4	42.0	6.3	31.2	0.4	1.8	20.1
Romania[c]	0.3	0.4	16.3	24.6	24.4	36.9	25.3	38.1					66.3
Russian Federation[d]			17.4	7.7	3.0	1.3	20	88.6	0.3	0.1	5.0	2.2	225.7
Slovakia	0.2	1.1	0.6	3.0	1.9	9.4	16.6	83.4	0.6	2.9		0.2	19.9
Slovenia	0.1	2.4	0.4	7.7			4.6	89.9				0.1	5.1
Spain	2.8	2.1	11.1	8.4	9.3	7.0	108.1	81.3	0.5	0.4	1.2	0.9	133.0
Sweden	2.6	10.1	3.7	14.4	2.7	10.5	16.8	65.0					25.8
Switzerland	1.0	8.7	0.2	2.2	0.3	2.8	9.2	81.4	0.2	1.9	0.3	3.1	11.3
Ukraine[c]			6.7	11.6	22.9	39.5	28.0	48.3	0.1	0.2	0.2	0.3	58.0
United Kingdom	4.2	2.0	12.4	5.9	93.9	44.3	100.4	47.4	0.9	0.4			211.9
United States	162.7	12.7	45.1	3.5	116.6	9.1	931.8	72.8	24.0	1.9			1 280.2
Total	246.3	6.9	282.8	7.9	628.5	17.6	2 320.5	64.9	47.1	1.3	47.8	1.3	3 573.1

[a] Includes *fugitive fuel* emissions and *fuel combustion* emissions other than *transport*.
[b] Includes *solvent use* and *land-use change and forestry*.
[c] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[d] Total emissions from *fuel combustion* are reported under other energy since emissions were not further disaggregated by the Party.

Table A.12. Anthropogenic N_2O emissions by source category, 1998 (Gigagrams and percentage of total by Party)

	Energy				Industrial processes		Agriculture		Waste				
	Transport		Other[a]								Other[a]		Total
	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)	%	(Gg)
Australia	11.9	13.3	3.4	3.8	1.7	1.8	70.7	78.9			2.0	2.2	89.6
Austria	1.9	25.6	0.9	12.6	0.5	7.4	3.3	44.1	0.0	0.2	0.8	10.1	7.4
Belgium	1.7	4.9	5.8	17.2	15.1	44.8	10.8	32.0	0.1	0.2	0.3	0.9	33.7
Bulgaria	0.1	0.3	8.7	18.2	3.1	6.6	35.2	73.7	0.6	1.3			47.7
Canada	28.1	13.4	7.9	3.8	18.8	9.0	147.0	70.2	3.2	1.6	4.3	2.0	209.3
Czech Republic	1.4	5.2	3.1	11.3	3.9	14.3	17.4	64.2	0.6	2.4	0.7	2.6	27.1
Denmark	1.4	4.5	1.5	4.9			27.6	90.6					30.5
Estonia	0.0	0.8	0.1	10.0			1.2	90.8					1.3
Finland	2.5	9.6	5.5	21.6	4.3	16.6	12.9	50.3	0.3	1.1	0.2	0.8	25.6
France	9.4	3.5	9.8	3.6	51.9	19.1	177.2	65.2	3.5	1.3	20.0	7.3	271.8
Germany	18.3	11.5	22.0	13.8	29.0	18.2	84.0	52.6	0.4	0.3	6.0	3.8	159.7
Greece	2.0	6.6	6.8	22.3	1.8	6.0	19.7	65.1					30.3
Hungary	0.1	0.3	0.4	1.1	0.0	0.0	34.6	98.5			0.0	0.0	35.1
Iceland													
Ireland	1.0	3.2	3.5	10.7	2.6	8.1	25.3	78.0					32.5
Italy	12.5	10.0	10.1	8.1	2	16.1	81.3	65.4	0.5	0.4	0.0	0.0	124.4
Japan													
Latvia	0.2	4.2	0.2	5.5			3.2	83.8	0.2	6.5	0.0	0.0	3.8
Liechtenstein													
Lithuania	0.0	0.2	0.2	1.5	9.3	83.4	1.7	14.9					11.1
Luxembourg													
Monaco	0.0	41.0	0.0	32.7					0.0	26.3			
Netherlands	6.5	9.1	0.6	0.8	33.8	47.2	25.9	36.2	0.6	0.8	4.2	5.9	71.6
New Zealand	0.5	1.3	0.3	0.7			37.6	96.7	0.5	1.2	0.0	0.1	38.9

Norway	1.6	10.0	0.4	2.4	5.4	33.2	8.4	51.5	0.4	2.3	0.1	0.6	16.4
Poland	1.7	3.2	3.8	11.2	12.9	25.0	31.2	60.6			0.0	0.0	51.6
Portugal	1.3	5.9	2.3	10.9	2.0	9.1	7.7	35.8	7.9	36.8	0.3	1.6	21.4
Romania													
Russian Federation													
Slovakia	0.5	4.9	0.3	2.9	0.2	2.2	9.1	85.3	0.5	4.7			10.7
Slovenia													
Spain	5.7	4.0	13.1	9.3	7.0	5.0	113.5	80.2	0.6	0.4	1.5	1.1	141.4
Sweden	1.8	6.9	5.6	21.7	2.6	10.2	15.7	61.2					25.7
Switzerland	2.0	17.3	0.2	2.1	0.3	2.7	8.3	71.8	0.3	2.7	0.4	3.3	11.6
Ukraine[c]			0.4	2.5	8.6	54.2	6.4	40.5	0.1	0.6	0.3	1.9	15.8
United Kingdom	13.3	7.3	11.7	6.5	59.4	32.9	95.7	53.0	0.5	0.3			180.6
United States	203.3	14.4	50.4	3.6	91.4	6.5	1 040.6	73.7	26.2	1.9			1 412.0

[a] Includes *fugitive fuel* emissions and *fuel combustion* emissions other than *transport*.
[b] Includes *solvent use* and *land-use change and forestry*.
[c] Total emissions from *fuel combustion* are reported under other energy since emissions were not further disaggregated by the Party.

Table A.13. Emissions of hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride[a], 1990, 1995 and 1998, and percentage change by Party (Gigagrams of CO_2 equivalent using IPCC 1995 GWP values with a time horizon of 100 years)

	HFCs			PFCs			SF_6			Total		
	1990	1995	1998	1990	1995	1998	1990	1995	1998	1990	1995	1998
Australia[b]				4 826	1 432	1 415			4	4 826	1 432	1 419
Austria		543	779		15	21		1 143	967		1 702	1 767
Belgium		332	527					206	206		538	733
Bulgaria			577			69						646
Canada		479	864	5 975	6 016	6 023	2 870	1 879	1 536	8 845	8 375	8 423
Czech Republic												
Denmark	0	244	455		1	17		140	70	0	384	541
Estonia												
Finland	0	30	246	1	1	1	54	23	30	55	54	277
France	2 252	1 400	3 393	3 193	1 331	1 610	2 199	2 318	2 342	7 644	5 050	7 345
Germany	2 340	3 132	3 643	2 694	1 764	1 554	3 896	6 238	5 688	8 930	11 134	10 885
Greece	935	3 253	3 744	367	78	54				1 302	3 331	3 798
Hungary			154			597			201			952
Iceland[b]							5	5		5	5	
Ireland[b]												
Italy	351	1 247	1 617	237	213	125	198	365	398	787	1 825	2 140
Japan[c]							38 240	52 580	50 190	38 240	52 580	50 190
Latvia												
Liechtenstein												
Lithuania												
Luxembourg												
Monaco[d]												
Netherlands	5 144	6 723	6 686	2 456	2 089	2 168	1 386	1 458	1 458	8 986	10 270	10 312
New Zealand		216	373	603	183	62	3	19	32	605	418	466
Norway	0	26	133	3 032	1 562	1 267	2 193	582	698	5 225	2 169	2 098
Poland[b]								24			24	

Portugal					197			0			198	
Romania												
Russian Federation[g]	9 665	7 553	5 915	31 630	24 304	10 262				41 295	31 857	36 177
Slovakia		25	44	272	114	24	0	10	12	272	148	80
Slovenia												
Spain	2 894	5 604	8 452	828	791	740	104	144	183	3 826	6 539	9 375
Sweden			1 384			23		1 195	2 144		1 195	3 551
Switzerland			469			70			153			692
Ukraine												
United Kingdom	11 374	15 205	20 183	2 281	1 094	652	724	1 134	1 289	14 379	17 433	22 124
United States	35 777	52 686	93 072	22 899	17 032	18 041	26 767	36 667	36 663	85 442	106 385	147 776

[a] Estimates given in this table refer to actual emissions, except in cases where only potential emissions have been reported, as was the case for Japan and Sweden. Bulgaria reported potential emissions for HFCs. The Netherlands and Poland reported potential emissions for SF_6.

[b] Party indicated that HFC emissions were not estimated as reliable data are not available.

[c] Party did not report the exact chemical species of all these gases so it was not possible to calculate the emissions in terms of CO_2 equivalent (see tables A.14 and A.15).

[d] Party indicated that presently it is not possible to construct meaningful and robust estimates for HFCs, PFCs and SF_6.

[e] 1997 data given here as 1998 data were not reported.

[f] Party did not report estimates, but indicated that emissions were negligible.

[g] 1996 data are given here as 1998 data were not reported.

Table A.14a. Emissions of hydrofluorocarbons, 1990, 1995 and 1998 (Megagrams)[a]

	Total HFC			HFC-23			HFC-32			HFC-125		
	1990	1995	1998	1990	1995	1998	1990	1995	1998	1990	1995	1998
Australia[b]												
Austria[c]		417.50	587.90									
Belgium		270.26	391.96								0.86	8.64
Bulgaria			129.93			29.88						16.39
Canada		323.29	542.85		0.06	2.70		0.00	0.04		18.12	52.72
Czech Republic												
Denmark	0.00	213.87	274.88									
Estonia												
Finland	0.12	26.23	159.90	0.03	0.03	0.03		0.04	0.63		2.57	18.14
France	258.00	709.50	2 030.10	167.90	18.10	23.70				11.70	100.00	164.70
Germany[d]	200.00	2 135.00	2 884.00									
Greece	79.92	278.04	320.00	79.92	278.04	320.00						
Hungary			102.84									4.62
Iceland[e]		10.00										
Ireland[b]												
Italy	30.00	619.73	1 043.28	30.00	30.25	0.45		12.88	23.87		43.02	97.35
Japan[f]	1 600.00	11 100.00	13 500.00									
Latvia												
Liechtenstein												
Lithuania												
Luxembourg												
Monaco[c]												
Netherlands	459.77	853.66	1 342.50	436.00	536.00	459.00						
New Zealand		129.40	214.15					1.00			1.40	24.00
Norway	0.13	15.12	68.69		0.00	0.07		0.01	0.33		2.38	14.73
Poland[e]		17.00	207.00									
Portugal												

Romania									
Russian Federation[g]	870.00	690.00	550.00	820.00	640.00	500.00			
Slovakia		14.51	31.21		0.09	0.05	0.07	0.01	0.43
Slovenia									
Spain	247.32	481.65	1 209.25	247.32	478.38	645.50			11.23
Sweden			868.20			0.20	20.10		85.80
Switzerland			388.00			0.10	0.50		11.40
Ukraine									
United Kingdom[g]	972.70	1 936.04	3 655.53						
United States	3 559.26	18 756.29	35 100.02	2 995.16	2 623.58	4 220.69		459.34	1 027.02

[a] Estimates given in this table refer to actual emissions, except in cases where only potential emissions were reported, as was the case for Bulgaria, Iceland, Japan and Sweden.
[b] Party indicated that HFC emissions were not estimated as reliable data are not available.
[c] Party only reported aggregate emissions of HFCs.
[d] Party indicated that presently it is not possible to construct meaningful and robust estimates for HFCs, PFCs and SF_6.
[e] 1997 data given here as 1998 data were not reported.
[f] Party did not report estimates but indicated that emissions of HFCs were negligible.
[g] 1996 data are given here as 1998 data were not reported.
[h] Party did not report emissions of each species for reasons of commercial confidentiality.

Table A.14b. Emissions of hydrofluorocarbons, 1990, 1995 and 1998 (Megagrams)

	HFC-134a			HFC-152a			HFC-143a			Other		
	1990	1995	1998	1990	1995	1998	1990	1995	1998	1990	1995	1998
Australia												
Austria		417.50	577.67						5.54			
Belgium		248.31	351.11		20.00	20.85		1.09	11.36			
Bulgaria			54.08			0.42			29.16			
Canada[a]		284.66	405.62		3.96	40.95		10.65	37.13		5.85	3.69
Czech Republic												
Denmark[b]		159.38	189.00	0.00	44.59	8.89				0.00	9.90	76.99
Estonia												
Finland		10.64	91.61	0.09	11.09	30.67		1.87	18.84			
France[a]		528.00	1 736.00	11.70	5.00	0.70	66.70	58.00	103.70		0.40	1.30
Germany[c]												
Greece												
Hungary			92.76						5.46			
Iceland[d]												
Ireland												
Italy		505.51	871.29					28.07	50.33			
Japan[c]												
Latvia												
Liechtenstein												
Lithuania												
Luxembourg												
Monaco[c]												
Netherlands	9.00	256.70	761.00	4.96	24.00	20.80	2.63	9.32	35.00		3.90	17.00
New Zealand		104.00	165.32		3.00	1.00		20.00	23.83			
Norway		10.23	38.20	0.13	0.99	4.79		1.52	10.43			0.15
Poland[d]												
Portugal												

Romania								
Russian Federation[c]	50.00	50.00	50.00					
Slovakia		10.99	29.18	0.32		0.46	3.52	0.71
Slovenia								
Spain		1.62	665.89			25.13	1.65	57.50
Sweden			702.50	3.10		56.50		
Switzerland[f]			222.80	64.30		8.30		80.60
Ukraine								
United Kingdom[c]								
United States[g]	564.10	14 596.18	27 692.60		131.52	506.24	945.67	1 653.43

[a] Emissions of HFC-227ea are given under *other*.
[b] Emissions of HFC-404a, 409a, 410a are given under *other*.
[c] Party only reported aggregate emissions of HFCs (see table A 1(a)).
[d] Party did not report estimates, but indicated that emissions of HFCs were negligible.
[e] 1996 data are given here as 1995 data were not reported.
[f] Emissions of HFC-43-10mee are given under *other*.
[g] Emissions of HFC-43-10mee (1995 and 1998) and HFC-236fa (1998) are given under *other*.

Table A.15. Emissions of perfluorocarbons and sulphur hexafluoride, 1990, 1995 and 1998 (Megagrams)[a]

	Total PFC			CF_4			C_2F_6			SF_6		
	1990	1995	1998	1990	1995	1998	1990	1995	1998	1990	1995	1998
Australia	716.80	212.30	209.75	655.00	193.00	190.68	61.80	19.30	19.07			0.15
Austria		1.92	2.50		0.80	0.90		1.12	1.60		47.84	40.47
Belgium											8.63	8.63
Bulgaria			10.30			9.36			0.94			
Canada	888.33	896.50	897.59	813.90	826.63	827.65	74.43	69.87	69.94	120.10	78.63	64.28
Czech Republic												
Denmark		0.14	2.42								5.85	2.91
Estonia												
Finland[b]	0.08	0.13	0.13	0.03	0.03	0.03				2.26	0.97	1.24
France[c]	452.00	187.30	224.70	317.00	102.00	143.00	80.00	27.00	46.00	92.00	97.00	98.00
Germany[de]	397.00	258.00	221.00	355.00	224.00	171.00	42.00	32.00	42.00	163.00	261.00	238.00
Greece	54.47	11.55	8.03	49.52	10.50	7.30	4.95	1.05	0.73			
Hungary[b]			88.29			78.63			7.86			8.43
Iceland	45.00	8.00								0.20	0.20	
Ireland												
Italy	34.30	30.73	18.39	28.91	25.67	16.26	5.39	5.07	2.13	8.29	15.26	16.63
Japan[df]	800.00	2 100.00	2 200.00							1 600.00	2 200.00	2 100.00
Latvia												
Liechtenstein												
Lithuania												
Luxembourg												
Monaco[d]												
Netherlands	362.56	308.18	320.56	309.60	259.20	279.60	30.96	25.98	27.96	58.00	61.00	61.00
New Zealand	89.00	27.00	9.17	80.10	24.30	8.34	8.90	2.70	0.83	0.12	0.79	1.33
Norway[c]	459.00	237.01	191.98	441.03	229.08	184.85	17.97	7.92	7.08	91.74	24.33	29.20
Poland[b]		0.12	0.12								0.00	
Portugal											0.04	

Romania											
Russian Federation[h]	4,700.00	3,590.00	4,470.00	4,300.00	3,231.00	4,023.00	400.00	359.00	447.00		
Slovakia	40.30	16.90	3.54	36.60	15.40	3.24	3.70	1.50	0.30	0.00	0.41	0.51
Slovenia											
Spain	123.59	117.73	110.09	114.29	108.03	99.69	9.29	9.55	8.90	4.35	6.05	7.65
Sweden[i]			2.90			0.80			1.50		50.00	89.70
Switzerland[i]			10.16			7.50			1.20			6.40
Ukraine												
United Kingdom[i]	331.05	156.90	94.00							30.30	47.43	53.95
United States	3 272.29	2 312.80	2 376.49	2 668.94	1 572.58	1 415.71	603.35	740.22	960.79	1 119.94	1 534.17	1 534.00

[a] Estimates given in this table refer to actual emissions, except in cases where only potential emissions were reported, as was the case for Japan. The Netherlands, Poland and Sweden reported actual emissions for PFCs, but potential emissions for SF_6.
[b] Total PFC emissions include emissions of C_2F_{14}.
[c] Total PFC emissions include "other" PFCs.
[d] Party only reported aggregate emissions of PFCs.
[e] Total PFC emissions include emissions of C_3F_8.
[f] 1997 data are given here as 1998 data were not reported.
[g] Party did not report estimates, but indicated emissions of PFCs and SF_6 were negligible.
[h] 1996 data are given here as 1998 data were not reported.
[i] Total PFC emissions include C_3F_8, C_4F_{10}, c-C_4F_8, C_5F_{12}, C_6F_{14}.
[j] Party did not report emissions of each species for reasons of commercial confidentiality.

Table A.16. Anthropogenic emissions of CO, NO_x, NMVOCs and SO_2, 1990 and 1998 (Gigagrams)

	CO		NO_x		NMVOC		SO_2	
	1990	1998	1990	1998	1990	1998	1990	1998
Australia	20 643	20 749	2 244	2 595	1 763	1 851	86	1 791
Austria	1 306	998	192	167	344	238	91	46
Belgium	784	753	321	284	291	260	324	172
Bulgaria[a,b]	827	516	486	143	132	89		1 226
Canada								
Czech Republic	1 055	787	742	414	311	267		443
Denmark	636	596	277	233	163	140	183	77
Estonia	186	159	79	41	23	25		140
Finland	549	452	311	253	207	172	237	89
France	10 768	7 927	1 925	1 662	2 980	2 420	1 312	865
Germany	11 218	5 425	2 709	1 780	3 225	1 705	5 321	1 292
Greece	1 289	1 450	316	356	320	382	507	542
Hungary[a,b]	743	656	231	209	205	74		590
Iceland	58		26		13		24	
Ireland	398	313	101	119	98	102	167	176
Italy	7 863		1 952		2 259		1 652	
Japan	3 873		1 851		1 921		900	
Latvia	388	326	93	42	148	67	119	40
Liechtenstein	2		1		2			
Lithuania	644	368	178	74	94	104		134
Luxembourg	175		23		20			
Monaco	3	2	1	1	1	1	0	0
Netherlands	1 139	724	563	441	500	302	193	113
New Zealand	755	885	140	174	158	181	61	60
Norway	820	611	219	223	300	345	53	30
Poland[a]	7 400	4 301	1 450	991	1 290	730	-	1 897
Portugal	1 582	1 516	295	348	403	506	334	359

Romania[a]	2 421		554		529			
Russian Federation	8 140		3 040		5 990		9 440	
Slovakia[b]	537	313	229	130	149	33	543	179
Slovenia	174		64		37			
Spain	3 982	3 706	1 228	1 301	2 848	2 629	2 136	1 592
Sweden	1 211	1 004	336	257	516	415	119	49
Switzerland[b]	707	433	163	105	281	175	42	28
Ukraine[b]	7 481		1 243		656			
United Kingdom	6 937	4 755	2 786	1 751	2 444	1 779	3 737	1 615
United States	85 394	78 082	21 798	22 066	18 795	17 011	21 465	19 441

[a] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).
[b] As data for 1990 were not available in the Party's recent submission, data for 1990 given here are from previous submissions.

Table A.17. Anthropogenic emissions of CO_2, CH_4 and N_2O from international bunkers, 1990 and 1998 (Gigagrams)

	CO_2 1990			CO_2 1998			CH_4 1990			CH_4 1998			N_2O 1990			N_2O 1998		
	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total
Australia	4 345	2 056	6 401	7 233	2 240	9 473	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3
Austria	941		941	1 835		1 835	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Belgium	2 690	13 069	15 759	4 013	18 070	22 082				0.0		0.0						
Bulgaria[a]	892	874	1 766	280	1 233	1 512	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Canada	2 729	2 995	5 724	2 879	3 776	6 655	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.7	0.3	0.6	0.8
Czech Republic				225		225				0.1		0.1				0.0		0.0
Denmark	1 927	3 059	4 986	2 265	4 414	6 679	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.3		0.3	0.3
Estonia				333		333												
Finland	974	1 800	2 774	990	1 658	2 648	1.2	0.0	1.3	1.2	0.0	1.3	0.4	0.7	1.2	0.4	0.7	1.1
France	7 848	8 137	15 985	11 470	9 165	20 635								0.3	0.3		0.3	0.3
Germany	11 589	7 980	19 569	13 398	6 476	19 874	0.2	0.3	0.5	0.2	0.3	0.5	0.2	0.4	0.6	0.2	0.4	0.6
Greece	2 452	8 028	10 480	2 449	11 059	13 508	0.4	0.8	1.2	0.6	1.1	1.7	0.1	0.5	0.6	0.1	0.7	0.8
Hungary[a]				556		556				0.1		0.1				0.0		0.0
Iceland			319															
Ireland	1 116	56	1 173	1 373	503	1 876												
Italy	3 780	8 651	12 431	6 404	7 255	13 659	0.3	0.8	1.1	0.6	0.9	1.5	0.1	0.5	0.7	0.3	0.5	0.8
Japan	13 184	17 621	30 806				0.4	1.3	1.7					0.4	0.4			
Latvia																		
Liechtenstein																		
Lithuania					156	156					0.0	0.0					0.0	0.0
Luxembourg			111															
Monaco																		
Netherlands	4 500	35 600	40 100	9 500	39 800	49 300												
New Zealand	1 352	1 032	2 384	1 637	1 062	2 700	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1
Norway	605	1 478	2 083	819	2 899	3 718	0.0	0.1	0.1	0.0	0.2	0.2	0.0	0.0	0.1	0.0	0.1	0.1
Poland[a]				342	1 750	2 092				0.0	0.2	0.2				0.0	0.1	0.1
Portugal	721	1 173	1 894	622	1 141	1 763	0.0	1.9	1.9	0.0	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Romania[a]																		

Russian Federation	2 900	9 500	12 400				0.0	0.6	0.7				0.1	0.1	0.2			
Slovakia																		
Slovenia																		
Spain	3 161	11 780	14 940	8 518	19 551	28 069	0.0	0.6	0.6	0.1	1.0	1.1	0.1	0.3	0.4	0.3	0.5	0.8
Sweden	2 045	2 162	4 207	1 926	5 084	7 010	0.1		0.1	0.1		0.1					0.4	0.4
Switzerland	3 200		3 200	4 231		4 231												
Ukraine																		
United Kingdom	14 791	6 559	21 349	24 122	8 788	32 910	2.9	0.6	3.5	4.0	0.8	4.8	0.5	0.4	0.9	0.7	0.6	1.3
United States	46 728	71 237	117 965	56 917	57 783	114 700	1.3	0.7	1.9	1.6	0.5	2.1	1.5	1.8	3.2	1.8	1.4	3.2

* In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table A.18. Anthropogenic emissions of CO and NO_x from international bunkers, 1990 and 1998 (Gigagrams)

	CO 1990			CO 1998			NO_x 1990			NO_x 1998		
	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total
Australia	7.2	1.9	9.1	11.9	2.0	14.0	23.3	54.7	78.0	38.7	59.7	98.4
Austria	0.8		0.8	1.4		1.4	3.3		3.3	6.4		6.4
Belgium				1.7		1.7						
Bulgaria[a]			1.8	1.4	2.2	3.6			22.4	1.1	27.3	28.4
Canada												
Czech Republic				4.1		4.1				1.4		1.4
Denmark	2.1	7.2	9.3	1.1	10.3	11.4	8.0	76.5	84.5	9.5	121.0	130.5
Estonia												
Finland	5.5	4.0	9.5	4.0	3.7	7.7	2.8	32.8	35.6	3.5	28.9	32.4
France	8.4	2.1	10.5	8.3	2.4	10.7	25.1	154.8	179.8	31.6	174.5	206.0
Germany	56.6	37.3	93.9	68.0	30.0	98.0	50.6	155.3	205.9	65.0	126.0	191.0
Greece	32.5	23.2	55.7	44.4	32.0	76.4	20.4	195.6	215.9	23.3	270.3	293.6
Hungary[a]				0.1		0.1						
Iceland			0.8						3.2			
Ireland	4.1	0.1	4.3	5.1	1.2	6.3	5.3	1.0	6.3	6.6	9.1	15.6
Italy	3.5	20.0	23.5				12.0	194.3	206.3			
Japan	22.4	33.6	56.0				54.1	335.9	390.0			
Latvia												
Liechtenstein												
Lithuania												
Luxembourg			0.3						0.1			
Monaco												
Netherlands												
New Zealand	2.2	2.5	4.7	2.7	2.5	5.2	5.6	24.9	30.4	6.7	25.3	32.1
Norway	1.7	1.4	3.1	1.3	2.8	4.1	1.7	30.3	32.0	2.5	59.4	61.9
Poland[a]												
Portugal	1.4	0.7	2.1	1.0	0.7	1.7	2.9	33.0	35.9	2.5	32.0	34.4
Romania[a]												

Russian Federation												
Slovakia												
Slovenia												
Spain	5.9	7.2	13.1	15.0	12.1	27.1	16.5	249.3	265.8	45.1	427.9	473.0
Sweden	3.7	2.5	6.2	4.7	11.1	15.9	4.2	48.0	52.2	6.7	33.7	40.4
Switzerland												
Ukraine												
United Kingdom	60.1	15.5	75.6	90.1	20.8	110.9	72.8	119.6	192.4	120.2	160.2	280.4
United States	76.7	41.7	118.4	93.8	33.9	127.7	184.5	1 908.3	2 092.7	225.5	1 444.0	1 669.5

[a] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[b] As data for 1990 were not available in the Party's recent submission, data for 1990 given here are from previous submissions.

Table A.19. Anthropogenic emissions of NMVOCs and SO_2 from international bunkers, 1990 and 1998 (Gigagrams)

	NMVOC 1990			NMVOC 1998			SO_2 1990			SO_2 1998		
	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total	Aviation	Marine	Total
Australia	3.6	1.7	5.3	5.9	1.9	7.8	0.8	31.8	32.6	1.4	42.0	43.3
Austria	0.3		0.3	0.5		0.5	0.8		0.8	0.6		0.6
Belgium				1.0		1.0				0.0		0.0
Bulgaria[a]			0.3	0.1	0.4	0.5				0.1	15.7	15.8
Canada												
Czech Republic				1.6		1.6				0.2		0.2
Denmark	0.9	2.3	3.2	0.9	3.2	4.1	0.1	54.7	54.9	0.1	59.9	60.0
Estonia												
Finland	0.3	5.2	5.5	0.5	4.8	5.3	0.5	18.5	19.1	0.1	12.8	12.9
France	2.9	70.8	73.7	2.4	79.8	82.2	2.5	150.8	153.3	3.6	159.4	163.0
Germany	9.3	15.2	24.5	11.0	12.0	23.0	3.9	126.3	130.2	4.0	102.0	106.0
Greece	5.8	5.7	11.4	7.3	7.8	15.1	0.8	154.6	155.4	0.8	211.0	211.8
Hungary[a]												
Iceland			0.1						0.1			
Ireland	1.0	0.0	1.0	1.2	0.4	1.6	0.4	0.6	0.9	0.4	3.6	4.0
Italy	2.5	5.7	8.2				1.2	131.2	132.4			
Japan	3.4	9.7	13.1									
Latvia												
Liechtenstein												
Lithuania											2.1	2.1
Luxembourg			0.1									
Monaco												
Netherlands												
New Zealand	0.3	0.7	1.1	0.4	0.7	1.1	0.1	9.4	9.5	0.1	11.6	11.7
Norway	0.5	1.1	1.6	0.2	2.2	2.4	0.1	9.9	10.0	0.1	17.0	17.2
Poland[a]												
Portugal	0.2	0.1	0.3	0.2	0.1	0.2	0.2	18.7	18.9	0.2	16.0	16.2
Romania[a]												

Russian Federation												
Slovakia[b]												
Slovenia												
Spain	2.8	11.2	14.0	7.4	20.2	27.7	1.0	182.9	183.9	2.7	357.6	360.3
Sweden	0.5	1.0	1.5	0.7		0.7		17.0	17.0	0.5	16.6	17.1
Switzerland												
Ukraine												
United Kingdom	36.9	4.4	41.3	55.0	5.9	60.9	2.8	92.5	95.3	7.7	116.8	124.5
United States	11.5	50.7	62.2	14.1	41.3	55.3						

[a] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).
[b] As data for 1990 were not available in the Party's recent submission, data for 1990 given here are from previous submissions.

Table B.1. **Aggregate emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 ª 1990-1998, excluding CO_2 emissions/removals from land-use change and forestry (Gigagrams of CO_2 equivalent and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	423 237	422 863	424 340	426 671	428 429	441 702	452 866	462 025	484 699	14.5
Austria	75 452	79 209	73 091	72 770	74 515	77 948	78 304	78 920	80 315	6.4
Belgium[b]	136 463	143 959	143 838	142 234	147 647	149 853	154 172	144 510	145 372	6.5
Bulgaria[bc]	157 090	115 679	103 710	102 084	92 586	98 083		84 461	84 317	-46.3
Canada	611 770	605 618	620 531	623 834	643 742	658 774	676 609	687 282	692 230	13.2
Czech Republic[b]	189 837	175 323	161 221	154 710	147 291	148 103	153 579	157 816	147 777	-22.2
Denmark	69 567	80 138	74 278	76 348	79 624	76 557	89 785	80 064	76 144	9.5
Estonia[b]	40 719	39 813	30 210	24 087	24 925	22 653	23 122	23 097	21 756	-46.6
Finland	75 202	73 845	69 949	70 328	76 355	74 729	80 946	78 711	76 315	1.5
France	553 778	575 977	561 298	535 560	532 545	539 473	551 382	545 649	558 726	0.9
Germany	1 208 807	1 156 666	1 103 602	1 084 324	1 065 610	1 062 021	1 077 143	1 040 351	1 019 745	-15.6
Greece	105 346	105 303	106 685	107 713	109 693	112 322	114 713	119 895	124 315	18.0
Hungary[c]	101 633	86 789	78 033	77 895	76 089	76 757	78 068	75 783	83 677	-17.7
Iceland	2 576	2 484	2 603	2 704	2 669	2 696				4.7
Ireland	53 497	54 167	54 780	54 542	56 439	57 316	58 918	61 364	63 718	19.1
Italy	518 502	518 472	514 401	506 719	503 381	530 889	527 315	531 043	541 542	4.4
Japan	1 213 262	1 240 415	1 259 601	1 238 461	1 309 509	1 322 293	1 336 250	1 330 555		9.7
Latvia[b]	35 669	29 401	25 525	22 081	19 170	19 196	18 064	15 959	11 504	-67.7
Liechtenstein	260									
Lithuania[bc]	51 548								23 851	-53.7
Luxembourg	13 448				12 674	10 223				-24.0
Monaco	111	128	136	139	142	139	145	147	142	28.4
Netherlands	217 882	223 803	221 229	223 231	225 638	234 404	242 620	240 666	236 251	8.4
New Zealand	73 068	72 738	73 998	73 160	73 703	73 866	74 927	76 368	74 886	2.5
Norway	52 141	49 915	48 162	50 303	52 357	52 387	55 326	55 624	56 148	7.7

Poland[b]	564 286	437 448	439 045	429 649	438 895	416 330	436 545	426 220	402 477	-28.7
Portugal	63 858	66 327	68 962	67 410	68 317	72 760	70 121	71 578	74 870	17.2
Romania[c]	264 879	179 762	172 168	167 187	164 026					-38.1
Russian Federation[c]	3 040 062				2 149 969	2 065 711	1 962 441			-35.4
Slovakia	76 304	67 006	61 552	58 043	55 125	56 940	56 754	55 922	52 818	-30.8
Slovenia	19 212									
Spain	305 746	312 445	321 788	306 558	324 156	336 705	332 235	358 634	369 856	21.0
Sweden	69 399	64 888	65 742	65 724	67 683	68 403	77 043	71 405	73 842	6.4
Switzerland	53 005	54 933	54 607	52 151	51 437	52 285	52 624	52 454	53 706	1.3
Ukraine	919 220	784 111	765 090	678 301	572 045	538 833	499 634	466 471	454 934	-50.5
United Kingdom	741 489	742 375	718 732	694 022	694 670	685 071	705 714	681 355	679 850	-8.3
United States	6 048 786	5 999 520	6 111 024	6 232 086	6 354 316	6 411 034	6 616 008	6 702 213	6 726 997	11.2

[a] Aggregate emissions of CO_2, CH_4, N_2O, and HFCs, PFCs and SF_6, where reported (see table B.3).

[b] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.

[c] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

[d] Party reported only emissions of CO_2 and CH_4, not N_2O, for 1995-1997, so no aggregate emissions for these years are provided here.

Table B.2. **Aggregate emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6[a] 1990-1998, including land-use change and forestry[b] (Gigagrams of CO_2 equivalent and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	493 329	466 300	464 282	464 137	464 323	477 078	490 811	498 574	519 873	5.4
Austria	66 237	65 705	64 435	63 787	66 653	70 695	72 918	71 287	72 682	9.7
Belgium[c]	134 406	141 902	141 781	140 177	145 590	147 796	152 115	143 534	144 396	7.4
Bulgaria[c,d]	152 433	107 800	96 074	95 063	85 612	90 562		78 609	78 084	-48.8
Canada	572 628	548 349	575 179	589 255	614 013	637 646	647 723	663 658	670 396	17.1
Czech Republic[c]	187 556	170 296	155 180	149 067	143 348	142 649	149 101	153 177	144 019	-23.2
Denmark	68 651	79 218	73 355	75 421	78 694	75 622	88 838	79 105	75 171	9.5
Estonia[c,e]	29 402				13 800	9 387		31 090	18 400	-37.4
Finland	51 404	35 638	38 055	41 212	59 096	60 041	59 914	66 073	66 602	29.6
France	494 162	519 488	500 051	469 695	465 050	473 858	484 185	477 559	488 943	-1.1
Germany	1 175 088	1 122 947	1 069 883	1 050 605	1 031 891	1 028 528	1 043 650	1 006 858	986 252	-16.1
Greece[c]	105 345	105 303	106 685	107 713	109 693	112 322	114 713	119 895	124 315	18.0
Hungary[d]	98 536	83 550	74 211	73 197	71 269	71 959	74 137	71 578	79 266	-19.6
Iceland[c]	2 576	2 484	2 603	2 704	2 669	2 697				4.7
Ireland	48 477	48 991	49 404	48 955	50 715	51 403	52 834	55 093	57 269	18.1
Italy	492 888	492 618	489 317	483 349	479 887	507 664	503 028	507 409	517 908	9.1
Japan[d]	1 129 359	1 156 550	1 174 033	1 148 377	1 215 965	1 225 588				8.5
Latvia[c]	24 843	15 215	11 290	7 853	4 964	8 712	3 744	1 643	995	-96.0
Liechtenstein	238									
Lithuania[c,e]	42 700								31 563	-26.1
Luxembourg	13 153				12 379	9 928				-24.5
Monaco[c]	111	128	136	139	142	139	145	147	142	28.4
Netherlands	216 382	222 203	219 629	221 632	223 938	232 705	240 921	238 966	234 551	8.4
New Zealand	51 537	52 225	55 714	56 921	58 094	57 703	58 397	58 198	53 990	4.8
Norway[d]	42 551	38 215	34 912	36 793	36 677	38 746	37 716	39 125	38 561	-9.4

Poland[f]	529 340	398 680	399 239	390 479	396 042	373 630	393 928	383 699	372 637	-29.6
Portugal	59 868	62 209	64 718	63 040	63 823	68 140	65 483	66 922	70 196	17.3
Romania[g]	261 954	173 172	165 578	160 597	157 436					-39.9
Russian Federation[c]	2 648 062				1 581 969	1 225 711	1 122 441			-57.6
Slovakia	73 878	64 580	59 126	55 617	51 890	53 704	52 521	51 836	51 136	-30.8
Slovenia	16 919									
Spain	276 493	283 192	292 536	277 305	294 904	307 452	302 982	329 381	340 604	23.2
Sweden	33 031	30 520	35 742	35 724	37 683	38 403	45 269	39 108	46 162	31.8
Switzerland	48 662	50 529	50 080	46 433	45 680	46 556	46 699	46 286	47 598	-2.2
Ukraine	867 113	731 147	712 432	625 383	519 324	485 893	433 483	397 664	386 225	-55.5
United Kingdom	762 675	763 551	739 130	712 333	710 361	699 597	720 484	695 930	694 835	-8.9
United States	4 888 792	4 839 874	4 951 725	5 452 151	5 576 031	5 634 376	5 841 282	5 928 129	5 953 978	21.8

[a] Aggregate emissions of CO_2, CH_4, N_2O and HFCs, PFCs and SF_6, where reported (see table B.3).
[b] Estimates for *land-use change and forestry* are as reported in accordance with the present IPCC Guidelines for National Greenhouse Gas Inventories (see table B.8).
[c] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[d] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[e] As the Party did not provide estimates from the *land-use change and forestry* sector for 1991-1993 and 1996, no estimates for these years are provided here.
[f] As the Party did not provide estimates from the *land-use change and forestry* sector, no estimates are given in this table.
[g] As the Party did not provide estimates from the *land-use change and forestry* sector for 1996 and 1997, no estimates for these years are provided here.
[h] Party reported only emissions of CO_2 and CH_4, not N_2O, for 1995-1997, so no aggregate emissions are provided here.

Table B.3. Aggregate emissions of hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, 1990-1998[a] (Gigagrams of CO_2 equivalent)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Australia[b]	4 826	4 826	3 581	3 147	2 048	1 432	1 292	1 141	1 419
Austria						1 702			1 767
Belgium[d]						538	624	733	733
Bulgaria[e]									646
Canada	8 845	9 579	8 773	9 409	8 949	8 375	8 127	8 217	8 423
Czech Republic									
Denmark	0	0	119	229	301	384	478	608	541
Estonia									
Finland	55	38	19	11	20	54	123	194	277
France	7 644	6 207	5 463	4 728	4 539	5 050	6 193	6 905	7 345
Germany	8 930	9 041	9 484	11 163	11 440	11 134	10 220	10 700	10 885
Greece[e]	1 302	1 422	1 130	1 736	2 226	3 331	3 821	4 024	3 798
Hungary									952
Iceland[f]	5					5			
Ireland[g]									
Italy	787	816	813	829	1 311	1 825	1 707	2 140	2 140
Japan[f]	38 240	43 020	47 800	45 410	45 410	52 580	50 190	50 190	
Latvia									
Liechtenstein									
Lithuania									
Luxembourg									
Monaco									
Netherlands	8 986	8 669	8 191	8 737	10 118	10 270	11 118	11 502	10 312
New Zealand	605	653	639	241	352	418	507	466	466
Norway	5 225	4 594	2 714	2 737	2 485	2 169	2 083	2 017	2 098
Poland[f]						24			
Portugal[h]						158			

Romania									
Russian Federation[c]	41 295				38 603	31 857	36 177		
Slovakia	272	267	249	156	143	148	91	114	80
Slovenia									
Spain	3 826	3 468	3 761	3 164	4 792	6 539	7 490	9 120	9 375
Sweden[b]						1 195		1 601	3 551
Switzerland								588	692
Ukraine									
United Kingdom	14 379	14 425	14 138	14 604	15 855	17 433	18 466	20 371	22 124
United States	85 442	80 614	86 288	87 386	92 035	106 385	122 923	129 571	147 776

[a] Aggregate emissions of HFCs, PFCs and SF_6, where reported, as estimates for these gases were not reported by all Parties, for all years or in sufficient detail to convert estimates to units of CO_2 equivalent.
[b] Estimates include emissions of PFCs and SF_6 only.
[c] Party indicated that HFC emissions were not estimated as reliable data are not available.
[d] Estimates include emissions of HFCs and SF_6 only.
[e] Estimates include emissions of HFCs and PFCs only.
[f] Estimates include emissions of SF_6 only.
[g] Party indicated that presently it is not possible to construct meaningful and robust estimates for HFCs, PFCs and SF_6.
[h] Estimates for 1995 and 1997 include emissions of SF_6 only.

Table B.4. Total anthropogenic CO_2 emissions, excluding land-use change and forestry, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	278 669	280 206	282 769	286 296	290 367	302 277	312 286	319 532	337 973	21.3
Austria	62 130	66 022	60 152	59 899	61 754	63 694	65 911	66 788	66 604	7.2
Belgium[a]	113 997	121 420	121 591	119 519	124 312	125 576	129 654	121 340	121 975	7.0
Bulgaria[a,b]	103 856	66 043	59 183	61 859	59 178	62 332		59 148	55 150	-46.9
Canada	465 755	456 369	469 539	468 039	482 059	493 841	506 555	518 376	529 431	13.7
Czech Republic[a]	165 490	153 142	140 220	134 851	127 745	128 817	132 538	137 125	128 268	-22.5
Denmark	52 894	63 516	58 191	59 928	63 414	60 348	73 657	64 347	60 125	13.7
Estonia[a]	37 797	36 956	27 766	21 979	22 852	20 859	21 423	20 716	19 232	-49.1
Finland	60 771	60 400	57 879	58 638	64 813	62 227	68 387	66 177	63 945	5.2
France	387 590	411 325	401 632	381 065	377 852	383 817	396 515	391 113	412 860	6.5
Germany	1 014 500	975 950	928 308	918 268	904 112	902 916	924 128	892 426	886 181	-12.6
Greece	85 164	84 937	86 869	87 290	88 570	90 121	91 466	96 176	100 449	17.9
Hungary[b]	83 676	66 638	59 804	60 073	58 443	59 005	59 722	58 139	57 601	-31.2
Iceland	2 147	2 068	2 197	2 302	2 265	2 282				6.3
Ireland	31 575	32 256	32 893	32 421	33 987	34 501	35 700	38 071	40 019	26.7
Italy	432 565	430 912	429 331	422 324	418 104	443 184	439 479	441 232	459 461	6.2
Japan	1 124 532	1 147 845	1 162 310	1 143 843	1 213 940	1 219 418	1 235 593	1 230 831		9.5
Latvia[a]	24 771	19 420	16 423	14 482	11 910	12 027	11 065	12 842	8 287	-66.5
Liechtenstein	208									
Lithuania[a]	39 535					15 200	16 200	16 200	16 694	-57.8
Luxembourg	12 750				11 998	9 545				-25.1
Monaco	108	125	133	135	138	135	141	143	138	27.6
Netherlands	161 360	166 910	165 210	167 450	168 340	177 130	184 790	183 230	181 370	12.4
New Zealand	25 398	25 881	27 762	27 136	27 197	27 206	28 276	30 372	28 941	14.0
Norway	35 146	33 605	34 267	35 918	37 940	38 157	41 119	41 426	41 700	18.6
Poland[a,b]	476 625	366 958	371 591	363 160	371 588	348 172	372 530	361 626	337 450	-29.2

Portugal	43 132	44 976	48 928	47 774	48 587	51 531	49 822	51 505	53 891	24.9
Romania[a]	194 826	135 660	130 160	127 086	125 597					-35.5
Russian Federation[a]	2 372 300				1 660 000	1 590 420	1 495 920			-36.9
Slovakia	62 237	54 500	50 312	47 982	45 176	46 624	46 993	46 404	43 772	-29.7
Slovenia	13 935									
Spain	226 057	233 257	242 275	229 515	242 279	252 958	240 847	264 118	273 017	20.8
Sweden	55 443	55 218	56 207	56 182	58 438	58 108	63 352	56 684	56 953	2.7
Switzerland	44 409	46 285	45 990	43 566	42 928	43 805	44 212	43 549	44 809	0.9
Ukraine	703 792	586 478	577 916	504 222	406 838	380 928	346 768	322 907	314 445	-55.3
United Kingdom	584 220	588 047	573 656	559 620	559 333	551 325	570 278	544 252	546 390	6.5
United States	4 914 351	4 862 349	4 951 561	5 072 271	5 150 787	5 193 841	5 376 081	5 449 974	5 478 051	11.5

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

Table B.5. **CO_2 emissions from fuel combustion, 1990-1998 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	265 289	267 478	270 073	273 213	276 772	288 767	298 582	306 037	324 203	22.2
Austria	46 685	51 068	46 162	45 827	46 933	48 704	51 104	50 909	51 389	10.1
Belgium[a]	104 190	111 144	111 197	109 127	113 511	114 595	117 995	113 867	114 501	9.9
Bulgaria[a,b]	95 495	61 170	55 064	57 678	54 239	56 609		53 458	51 388	-46.2
Canada	415 690	405 838	419 730	416 893	429 923	440 965	452 945	464 819	476 426	14.6
Czech Republic[a]	160 073	148 807	135 629	130 661	123 631	124 647	129 516	133 925	124 486	-22.2
Denmark	51 516	61 713	56 250	58 039	61 528	58 578	71 768	62 173	58 147	12.9
Estonia[a]	37 184	36 342	27 453	21 786	22 668	20 638	21 216	20 362	18 890	-49.2
Finland	53 889	53 826	51 397	52 252	58 337	55 891	61 973	59 781	57 404	6.5
France	357 723	383 062	375 004	355 118	350 814	356 885	370 735	364 999	386 359	8.0
Germany	986 832	951 136	902 919	893 006	877 158	876 528	899 196	867 426	861 181	-12.7
Greece	77 292	77 147	79 171	79 383	81 131	82 096	83 211	87 764	91 968	19.0
Hungary[b]	80 089	65 256	58 636	58 755	57 046	57 567	58 174	56 552	54 621	-31.8
Iceland	1 674	1 628	1 754	1 810	1 773	1 774				6.0
Ireland	29 577	30 231	30 857	30 472	31 775	32 389	33 626	35 736	37 707	27.5
Italy	398 320	397 160	395 022	391 899	388 683	413 303	409 603	411 230	430 295	8.0
Japan	1 052 964	1 072 762	1 085 211	1 064 441	1 133 291	1 138 352	1 153 542	1 150 675		9.3
Latvia[a]	24 209	18 836	16 137	14 368	11 757	11 900	10 875	12 663	8 051	-66.7
Liechtenstein										
Lithuania[a]	37 332					14 800	15 800	15 800	13 982	-62.5
Luxembourg	12 133				11 520	9 109				-24.9
Monaco	106	122	130	132	135	131	138	139	134	26.5
Netherlands	159 040	164 850	163 440	165 900	166 750	172 960	180 030	178 010	176 760	11.1
New Zealand	22 397	22 670	24 448	23 735	23 846	23 842	24 861	26 823	25 531	14.0
Norway	26 370	25 729	26 413	27 451	28 791	28 492	31 214	31 553	31 644	20.0
Poland[a,b]	462 998	357 661	360 927	353 842	362 083	337 942	363 499	350 876	326 858	-29.4

Portugal	39 020	40 808	44 909	43 613	44 363	46 972	45 349	46 591	49 063	25.7
Romania[b]	185 575	130 465	125 498	122 644	121 327					-34.6
Russian Federation[b]	2 298 900	2 123 000	1 948 000	1 805 000	1 601 100	1 550 000	1 463 000			-36.4
Slovakia	56 691	50 375	45 667	43 720	40 660	41 904	42 494	41 670	39 001	-31.2
Slovenia	13 294									
Spain	205 673	213 404	223 785	211 499	222 031	232 254	220 255	239 339	245 698	19.5
Sweden	51 328	51 205	51 787	51 881	53 946	53 385	59 391	52 586	52 718	2.7
Switzerland	39 673	41 854	41 846	39 611	38 789	39 764	40 554	39 894	41 138	3.7
Ukraine	672 075	557 747	549 439	484 956	390 118	365 333	331 976	307 091	298 489	-55.6
United Kingdom	557 666	566 206	552 584	538 962	533 078	526 633	544 964	520 881	522 888	-6.2
United States	4 840 483	4 787 926	4 876 887	4 992 123	5 067 248	5 103 838	5 284 901	5 355 900	5 383 502	11.2

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

Table B.6. CO_2 emissions from transport, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	59 288	58 577	60 095	60 832	62 378	64 870	66 915	68 488	68 434	15.4
Austria	13 570	15 059	15 054	15 104	16 163	15 432	15 379	15 793	16 753	23.5
Belgium[a]	20 569	21 141	22 490	22 515	22 248	22 524	22 786	24 334	24 697	20.1
Bulgaria[a,b]	12 639	6 525	6 435	7 444	6 547	6 845		5 674	6 475	-48.8
Canada	145 833	140 611	144 669	147 814	155 224	159 440	163 928	170 335	174 252	19.5
Czech Republic[a]	7 959	6 869	8 143	8 314	8 260	8 912	9 896	11 392	10 779	35.4
Denmark	10 741	11 245	11 373	11 628	11 339	11 510	11 749	12 070	12 421	15.6
Estonia[a]	2 656	2 385	1 432	1 607	1 786	1 700	1 534	1 097	1 236	-53.4
Finland	12 475		11 592	10 993	11 414	11 126	10 994	11 531	12 299	-1.4
France	121 282	123 991	126 846	127 672	129 436	131 314	131 802	134 478	137 987	13.8
Germany	162 281	165 953	171 661	176 532	172 899	176 468	176 942	177 689	180 874	11.5
Greece	15 358	16 135	16 562	16 761	16 867	16 972	17 258	18 040	19 790	28.9
Hungary[b]	7 741	7 383	7 189	7 141	7 212	7 001	6 612	7 741	8 381	8.3
Iceland	721	727	729	738	743	749				3.9
Ireland	4 961	5 206	5 625	5 591	5 829	6 306	7 063	7 684	8 768	76.8
Italy	95 616	94 849	99 426	102 031	103 849	105 300	108 310	110 188	110 167	15.2
Japan	205 633	215 313	220 473	222 474	233 425	240 292	246 874	251 376		22.2
Latvia[a]	5 829	3 167	2 836	2 577	2 229	1 749	1 612	2 178	2 126	-63.5
Liechtenstein										
Lithuania[a]	5 791					3 500	3 800	4 100	3 754	-35.2
Luxembourg	2 625				3 685	3 426				30.5
Monaco	39	46	51	47	49	47	47	47	45	14.7
Netherlands	28 560	28 550	29 830	30 460	30 800	32 030	33 820	34 350	34 720	21.6
New Zealand	8 660	8 662	9 047	9 458	10 160	10 869	10 989	11 242	11 435	32.0
Norway	11 646	11 616	11 833	12 394	12 180	12 554	13 154	13 391	13 752	18.1

Poland[b]	28 238	27 815	30 475	27 675	29 533	25 285	28 098	26 662	28 127	-0.4
Portugal	11 404	12 133	13 123	13 697	14 097	14 646	15 439	15 969	16 181	41.9
Romania[b]	7 893	7 521	6 834	7 498	7 744					-1.9
Russian Federation[b]										
Slovakia	5 070	4 426	4 116	4 029	4 189	4 216	4 164	4 591	4 950	-2.4
Slovenia	3 179									
Spain	58 004	60 804	64 695	61 161	65 756	66 747	71 874	71 892	78 390	35.1
Sweden	18 650	18 613	19 099	18 322	18 685	19 341	19 573	18 957	21 140	13.3
Switzerland	14 144	14 668	14 983	13 933	14 117	13 815	13 885	14 462	14 690	3.9
Ukraine										
United Kingdom	116 721	116 194	117 647	118 822	119 175	118 066	122 679	123 756	122 899	5.3
United States	1 413 363	1 381 486	1 420 962	1 451 270	1 494 606	1 523 797	1 570 220	1 582 575	1 607 581	13.7

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table B.7. CO_2 emissions from industrial processes, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	6 654	6 330	6 211	6 520	7 277	7 018	7 110	7 139	7 823	17.6
Austria	12 745	12 207	11 140	11 299	11 936	12 133	11 629	12 727	11 919	-6.5
Belgium[a]	9 140	9 547	9 666	9 706	10 332	10 707	11 261	7 373	7 375	-19.3
Bulgaria[a,b]	8 361	4 873	4 118	4 181	4 939	5 723		5 369	3 762	-55.0
Canada	32 724	33 508	33 121	34 886	35 786	36 464	38 066	38 399	38 066	16.3
Czech Republic[a]	5 417	4 335	4 591	4 190	4 114	4 170	2 479	2 498	2 661	-50.9
Denmark	1 006	1 178	1 300	1 311	1 318	1 311	1 388	1 539	1 436	42.8
Estonia[a]	613	614	313	193	215	222	206	354	342	-44.2
Finland	1 130	1 000	1 025	858	840	810	840	900	921	-18.4
France	21 254	19 421	17 940	17 180	18 228	18 703	17 441	17 550	18 009	-15.3
Germany	27 668	24 814	25 389	25 262	26 954	26 388	24 932	25 000	25 000	-9.6
Greece	7 686	7 599	7 510	7 733	7 260	7 846	8 075	8 231	8 300	8.0
Hungary[b]	3 587	1 382	1 168	1 318	1 397	1 438	1 548	1 587	2 152	-40.0
Iceland	391	357	361	408	409	425				8.8
Ireland	1 931	1 954	1 965	1 878	2 141	2 041	2 003	2 264	2 250	16.6
Italy	27 532	27 106	27 502	23 451	22 618	23 169	22 877	23 052	23 682	-14.0
Japan	58 795	60 381	60 998	60 333	61 303	61 236	61 079	59 501		1.2
Latvia[a]	563	584	286	113	154	127	185	179	236	-58.1
Liechtenstein										
Lithuania[a]	2 203					400	400	400	2 525	14.6
Luxembourg	585				447	406				-30.6
Monaco										
Netherlands	1 900	1 500	1 300	1 200	1 400	1 600	1 800	1 700	1 500	-21.1
New Zealand	2 386	2 510	2 647	2 770	2 671	2 737	2 742	2 789	2 740	14.8
Norway	6 548	6 109	6 609	6 516	7 062	7 473	7 514	7 571	7 777	18.8

Poland[a,b]	13 574	9 247	10 603	9 248	9 422	10 144	8 938	10 664	10 487	-22.7
Portugal	3 678	3 729	3 561	3 708	3 732	4 073	4 000	4 431	4 330	17.7
Romania[b]	9 244	5 188	4 655	4 435	4 263					-53.9
Russian Federation[a]	46 309	43 603	35 702	29 802	24 000	23 080	18 920			-59.1
Slovakia	5 546	4 125	4 645	4 262	4 516	4 720	4 499	4 734	4 779	-14.0
Slovenia	641									
Spain	16 667	16 123	14 671	13 976	16 139	17 171	16 835	20 794	23 058	38.3
Sweden	3 786	3 684	4 123	4 005	4 227	4 458	3 711	3 803	4 124	8.9
Switzerland	3 363	3 034	2 736	2 548	2 731	2 622	2 220	2 207	2 204	-34.5
Ukraine	31 717	28 731	28 477	19 266	16 720	15 595	14 792	15 816	15 956	-49.7
United Kingdom	13 988	11 657	11 058	11 191	14 823	15 109	15 959	15 321	15 518	10.9
United States	54 427	53 197	53 512	55 137	58 432	61 735	63 170	66 021	67 447	23.9

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table B.8. **Anthropogenic CO_2 emissions and removals from land-use change and forestry,[a] 1990-1998 (Gigagrams and percentage change)**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	70 092	43 437	39 942	37 467	35 895	35 377	37 945	36 549	35 173	-49.8
Austria	-9 215	-13 504	-8 656	-8 982	-7 862	-7 254	-5 385	-7 633	-7 633	-17.2
Belgium[b]	-2 057	-2 057	-2 057	-2 057	-2 057	-2 057	-2 057	-977	-977	-52.5
Bulgaria[bc]	-4 657	-7 880	-7 636	-7 022	-6 974	-7 520		-5 852	-6 233	33.8
Canada	-39 141	-37 269	-43 352	-34 579	-29 729	-21 129	-28 886	-23 625	-21 833	-44.2
Czech Republic[b]	-2 281	-5 027	-6 041	-5 643	-3 943	-5 454	-4 479	-4 639	-3 757	64.7
Denmark	-916	-920	-923	-927	-930	-934	-947	-959	-973	6.2
Estonia	-11 317				-11 125	-13 266		7 993	-3 356	-70.3
Finland	-23 798	-38 207	-31 894	-29 116	-17 259	-14 687	-21 032	-12 637	-9 713	-59.2
France	-59 617	-56 488	-61 246	-65 865	-67 495	-65 615	-67 197	-68 090	-69 783	17.1
Germany	-33 719	-33 719	-33 719	-33 719	-33 719	-33 493	-33 493	-33 493	-33 493	-0.7
Greece										
Hungary[b]	-3 097	-3 239	-3 823	-4 698	-4 820	-4 798	-3 931	-4 205	-4 411	42.4
Iceland										
Ireland	-5 020	-5 176	-5 376	-5 586	-5 724	-5 913	-6 065	-6 271	-6 448	28.5
Italy	-25 614	-25 854	-25 084	-23 370	-23 494	-23 225	-24 287	-23 633	-23 634	-7.7
Japan	-83 903	-83 865	-85 368	-90 084	-93 545	-96 705				15.3
Latvia[b]	-10 826	-14 186	-14 235	-14 228	-14 206	-10 484	-14 320	-14 315	-10 509	-2.9
Liechtenstein	-22									
Lithuania[b]	-8 848					2 800	2 800	2 800	7 712	-187.2
Luxembourg	-295				-295	-295				0.0
Monaco										
Netherlands	-1 500	-1 600	-1 600	-1 600	-1 700	-1 700	-1 700	-1 700	-1 700	13.3
New Zealand	-21 530	-20 513	-18 283	-16 239	-15 608	-16 163	-16 530	-18 170	-20 896	-2.9
Norway	-9 590	-11 700	-13 250	-13 510	-15 680	-13 640	-17 611	-16 499	-17 588	83.4

Poland[c]	-34 746	-42 758	-40 815	-40 179	-41 953	-42 800	-42 617	-40 521	-29 820	-14.2
Portugal	-3 998	-4 119	-4 244	-4 370	-4 495	-4 620	-4 638	-4 636	-4 674	17.0
Romania[c]	-2 925	-6 590	-6 590	-6 590	-6 590					125.3
Russian Federation[c]	-392 000				568 000	-840 000	-840 000			114.3
Slovakia	-2 426	-2 426	-2 426	-2 426	-3 235	-3 235	-4 233	-4 086	-1 683	-30.6
Slovenia	-2 293									
Spain	-29 252	-29 252	-29 252	-29 252	-29 252	-29 252	-29 252	-29 252	-29 252	0.0
Sweden	-34 368	-34 368	-30 000	-30 000	-30 000	-30 000	-31 774	-32 296	-27 680	-19.5
Switzerland	-4 303	-4 404	-4 527	-5 718	-5 757	-5 729	-5 925	-6 169	-6 109	40.7
Ukraine	-52 107	-52 963	-52 658	-52 917	-52 721	-52 940	-66 151	-68 806	-68 708	31.9
United Kingdom	21 186	21 176	20 398	18 311	15 690	14 526	14 770	14 575	14 984	-29.3
United States	-1 159 998	-1 159 646	-1 159 299	-779 935	-778 285	-776 659	-774 725	-774 083	-773 019	-33.4

[a] Estimates for *land-use change and forestry* are as reported in accordance with the present IPCC Guidelines for National Greenhouse Gas Inventories. In this table negative values in gigagrams indicate net removal of CO_2 from the *land-use change and forestry* sector; negative values in percentage represent a decrease in removals in relation to the year 1990 and positive values indicate an increase in removals, except for Australia and the United Kingdom where the negative values in percentage change indicate less emissions or greater removals.

[b] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.

[c] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

Table B.9. Total anthropogenic CH_4 emissions, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	5 579	5 491	5 475	5 456	5 326	5 402	5 445	5 483	5 596	0.3
Austria	538	527	518	508	500	489	482	470	459	-14.5
Belgium[a]	612	610	613	628	598	597	597	584	581	-5.0
Bulgaria[b]	1 334	1 358	1 267	1 121	918	888		892	654	-50.9
Canada	3 542	3 669	3 799	3 916	4 018	4 163	4 294	4 317	4 261	20.3
Czech Republic[a]	779	711	668	633	613	600	573	562	529	-32.0
Denmark	278	281	281	285	282	281	279	272	287	3.0
Estonia[b]	105	102	91	90	90	68	63	103	101	-4.0
Finland	291	271	248	227	221	223	216	208	198	-32.2
France	3 022	3 024	2 985	2 970	2 903	2 845	2 717	2 618	2 584	-14.5
Germany	5 571	5 013	4 654	4 267	4 022	3 893	3 555	3 517	3 484	-37.5
Greece	452	455	459	464	473	479	493	500	509	12.7
Hungary[a]	664	660	707	700	704	776	802	777	679	2.1
Iceland	14	14	14	14	14	14				-2.9
Ireland	611	619	620	624	627	634	646	655	649	6.2
Italy	1 890	1 911	1 930	1 925	1 933	1 914	1 922	1 952	1 970	3.7
Japan	1 583	1 523	1 513	1 505	1 499	1 477	1 447	1 389		-10.0
Latvia[b]	186	183	150	105	98	101	93	93	97	-48.0
Liechtenstein	1									
Lithuania[b]	370					299	285	302	177	-93.2
Luxembourg	24				22	22				-7.4
Monaco[c]	0	0	0	0	0	0	0	0	0	15.7
Netherlands	1 292	1 309	1 256	1 225	1 203	1 173	1 165	1 105	1 065	-17.6
New Zealand	1 677	1 642	1 612	1 614	1 624	1 626	1 624	1 594	1 592	-5.1
Norway	315	320	327	332	340	343	346	351	346	9.9

Poland[b]	3 141	2 589	2 474	2 432	2 467	2 457	2 252	2 279	2 335	-25.6
Portugal	690	719	660	641	655	696	660	647	683	-1.0
Romania[b]	2 357	1 734	1 605	1 523	1 461					-38.0
Russian Federation[b]	26 500				19 610	19 064	18 544			-30.0
Slovakia	368	338	304	287	280	289	298	285	269	-26.0
Slovenia	176									
Spain	1 649	1 677	1 721	1 748	1 795	1 840	1 936	1 994	2 077	26.0
Sweden	288	325	320	320	302	297	261	261	256	-9.9
Switzerland	242	243	240	238	234	233	230	227	220	-9.2
Ukraine	9 602	8 654	8 348	7 932	7 570	7 261	7 059	6 606	6 457	-31.3
United Kingdom	3 677	3 627	3 533	3 179	2 943	2 917	2 854	2 763	2 636	-28.3
United States	31 058	31 020	31 329	31 203	31 711	32 147	31 972	32 984	31 593	1.7

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).
[c] Estimates given here are rounded. Actual estimate: rounded to the nearest thousandth are: 1990: 0.052; 1991: 0.056; 1992: 0.059; 1993: 0.060; 1994: 0.061; 1995: 0.059; 1996: 0.060; 1997: 0.062; 1998: 0.060.

Table B.10. CH_4 fugitive fuel emissions, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	1 085	1 054	1 102	1 059	1 035	1 126	1 144	1 142	1 217	12.2
Austria	4	5	4	5	5	5	6	5	6	29.2
Belgium[a]	35	38	39	41	43	34	36	36	36	1.9
Bulgaria[a,b]	259	216	205	196	192	220		229	171	-33.7
Canada	1 338	1 405	1 511	1 573	1 656	1 753	1 869	1 865	1 839	37.5
Czech Republic[a]	394	356	342	333	317	315	301	298	281	-28.6
Denmark	12	14	14	14	17	17	17	18	15	22.6
Estonia								32	29	
Finland	1	1	1	1	1	1	2	1	1	19.7
France	311	304	307	314	310	310	263	231	228	-26.7
Germany	1 561	1 472	1 463	1 349	1 219	1 196	1 103	1 070	1 046	-33.0
Greece	44	45	47	47	48	49	51	50	52	17.2
Hungary[b]	448	453	383	385	379	398	425	407	400	-10.9
Iceland										
Ireland	6	6	6	5	5	5	5	5	4	-33.4
Italy	336	332	318	307	292	283	284	286	285	-15.1
Japan	166	171	174	173	169	167	169	138		-17.2
Latvia[a]	53	51	36	25	18	22	19	9	23	-57.6
Liechtenstein										
Lithuania[a]	26								17	-33.4
Luxembourg	2				2	2				7.5
Monaco										
Netherlands	179	188	163	158	169	174	178	159	150	-16.3
New Zealand	27	25	25	24	27	33	45	36	43	60.2
Norway	18	20	25	27	29	29	28	33	30	67.8

Poland[a,b]	1 248	925	793	877	806	927	943	937	822	-34.2
Portugal	5	5	5	4	4	2	2	2	3	-39.9
Romania[b]	1 416	975	917	897	847					-40.2
Russian Federation[a]	18 900				13 300	13 050	12 860			-32.0
Slovakia	122	114	103	106	106	113	118	120	122	0.3
Slovenia	51									
Spain	158	156	159	153	152	162	169	176	178	13.0
Sweden										
Switzerland	15	14	14	14	13	13	13	13	12	-14.8
Ukraine	6 220	5 541	5 315	5 014	4 727	4 624	4 562	4 318	4 387	-29.5
United Kingdom	1 369	1 370	1 333	1 034	841	871	836	803	738	-46.1
United States	11 247	11 122	11 021	10 604	10 553	10 648	10 485	10 377	10 072	-10.5

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

Table B.11. CH_4 emissions from agriculture, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	3 417	3 424	3 365	3 322	3 271	3 268	3 275	3 300	3 346	-2.1
Austria	217	214	207	205	203	197	194	192	192	-11.7
Belgium[a]	381	377	376	382	353	357	353	349	351	-8.0
Bulgaria[a,b]	273	233	189	147	123	119		113	114	-58.3
Canada	980	988	972	1 016	1 065	1 099	1 108	1 111	1 097	11.9
Czech Republic[a]	204	186	169	148	139	139	134	129	121	-40.7
Denmark	193	192	190	195	187	187	186	182	184	-4.8
Estonia[a]	60	60	55	47	46	34	30	35	30	-49.5
Finland	92	87	85	84	84	82	82	83	81	-12.2
France	1 631	1 604	1 570	1 557	1 555	1 564	1 565	1 547	1 535	-5.9
Germany	1 902	1 679	1 599	1 572	1 570	1 559	1 553	1 556	1 556	-18.2
Greece	271	270	268	268	270	270	273	277	279	2.9
Hungary[b]	208	164	142	124	119	113	112	107	117	-43.9
Iceland	12	12	11	11	11	11				-6.7
Ireland	514	519	521	524	527	534	545	557	564	9.7
Italy	910	916	886	877	884	903	896	893	893	-1.9
Japan	842	845	849	855	848	831	810	789		-6.3
Latvia[a]	111	107	89	55	46	45	42	44	36	-67.8
Liechtenstein										
Lithuania[a]	181					95	89	88	83	-54.1
Luxembourg	18				17	17				-4.1
Monaco										
Netherlands	505	517	505	497	483	476	465	446	435	-13.8
New Zealand	1 492	1 458	1 435	1 433	1 439	1 438	1 424	1 411	1 406	-5.8
Norway	100	102	104	103	106	107	108	108	110	9.1

Poland[a,b]	863	773	704	656	646	615	591	598	582	-32.6
Portugal	301	298	287	269	278	278	274	274	272	-9.6
Romania[b]	635	488	433	370	357					-43.7
Russian Federation[a]	5 060	4 920	4 740	4 510	3 830	3 676	3 362			-33.6
Slovakia	135	118	103	88	83	85	81	75	66	-51.4
Slovenia	44									
Spain	940	938	951	948	953	956	999	999	999	6.3
Sweden	160	200	197	197	202	198	163	163	159	-0.1
Switzerland	151	153	151	150	147	147	145	144	137	-9.2
Ukraine	2 254	2 200	2 118	2 006	1 938	1 774	1 608	1 414	1 196	-47.0
United Kingdom	1 037	1 022	1 017	1 011	1 018	1 008	1 016	1 004	995	-4.1
United States	8 769	8 872	9 091	9 306	9 809	10 015	10 051	10 320	10 386	18.4

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).

Table B.12. CH_4 emissions from waste, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	708	724	732	748	745	729	734	745	737	4.1
Austria	295	290	287	281	276	270	265	258	248	-16.1
Belgium[a]	174	177	181	183	185	190	192	189	184	5.9
Bulgaria[a,b]	791	896	846	770	494	540		542	362	-54.2
Canada	900	929	950	973	984	988	992	1 015	1 038	15.3
Czech Republic[a]	105	105	104	100	101	101	97	97	98	-6.4
Denmark	62	64	65	65	66	63	62	59	55	-11.2
Estonia[a]	42	39	35	31	31	32	31	33	36	-15.5
Finland	175	160	142	124	115	114	106	98	89	-49.0
France	820	826	829	821	779	707	613	580	549	-33.0
Germany	1 894	1 695	1 453	1 216	1 114	1 029	793	794	794	-58.1
Greece	122	126	130	135	140	145	149	153	158	29.4
Hungary[b]		257	256	256	255	255	254	253	128	
Iceland	2	2	2	2	2	2				21.1
Ireland	85	86	88	89	90	91	92	88	76	-10.4
Italy	581	594	553	562	624	642	659	686	686	18.0
Japan	394	383	376	371	370	374	369	364		-7.7
Latvia[a]	19	23	23	24	25	26	26	28	27	40.6
Liechtenstein										
Lithuania[a]	166					139	130	145	68	-58.7
Luxembourg	4				3	3				-28.5
Monaco[c]	0	0	0	0	0	0	0	0	0	3.4
Netherlands	568	562	546	528	510	481	478	465	446	-21.5
New Zealand	143	144	137	140	140	138	138	129	126	-11.9

Norway	182	185	184	188	190	192	194	194	190	4.5
Poland[b]	966	855	941	833	855	848	652	677	870	-9.9
Portugal	306	313	320	327	330	332	336	340	339	10.8
Romania[b]	241	229	227	227	228					-5.4
Russian Federation[a]	1 940	1 950	1 950	1 950	1 950	1 770	1 770			-8.8
Slovakia	86	84	82	78	79	79	88	79	73	-14.9
Slovenia	76									
Spain	491	518	544	586	629	666	711	761	842	71.5
Sweden	85	85	85	85	61	61	61	61	61	-28.2
Switzerland	69	68	68	67	67	67	66	65	64	-7.3
Ukraine	892	890	891	892	889	881	873	859	859	-3.7
United Kingdom	1 150	1 111	1 066	1 018	981	946	906	861	809	-29.7
United States	10 321	10 304	10 475	10 557	10 609	10 724	10 668	10 671	10 431	1.1

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[c] Estimates given here are rounded. Actual estimates rounded to the nearest thousandth are: 1990: 0.023; 1991: 0.023; 1992: 0.023; 1993: 0.024; 1994: 0.023; 1995: 0.023; 1996: 0.023; 1997: 0.023; 1998: 0.024.

Table B.13. Total anthropogenic N_2O emissions, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	73.0	73.4	74.2	76.5	77.9	79.2	80.5	84.6	89.6	22.9
Austria	6.6	6.8	6.9	7.1	7.3	7.3	7.4	7.3	7.4	13.0
Belgium[a]	31.0	31.1	30.2	31.0	34.8	36.1	36.6	32.8	33.7	8.8
Bulgaria[a,b]	81.4	68.4	59.2	53.8	52.4	55.2		21.2	47.7	-41.4
Canada	202.6	202.0	202.1	206.9	220.5	223.0	231.4	225.9	209.3	3.3
Czech Republic[a]	25.8	23.4	22.5	21.2	21.5	21.6	29.1	28.7	27.1	4.9
Denmark	34.9	34.6	32.5	32.9	32.2	32.0	31.6	30.3	30.5	-12.7
Estonia[a]	2.3	2.3	1.7	1.4	1.3	1.2	1.2	0.7	1.3	-43.5
Finland	26.6	24.9	22.1	22.3	22.2	25.6	25.5	25.7	25.6	-3.8
France	306.7	306.2	295.2	281.9	287.7	293.1	295.5	298.9	271.8	-11.4
Germany	220.6	214.2	219.6	210.6	211.6	213.6	219.8	204.4	159.7	-27.6
Greece	30.3	30.3	29.2	28.8	28.9	28.4	29.2	29.7	30.3	-0.2
Hungary[b]	12.9	4.0	4.8	4.6	5.2	4.7	4.9	4.3	35.1	171.5
Iceland	0.4	0.4	0.4	0.4	0.4	0.4				-4.8
Ireland	29.3	28.8	28.6	29.1	30.0	30.7	31.2	30.8	32.5	10.8
Italy	146.0	150.4	147.8	145.9	143.3	147.4	147.6	150.6	124.4	-14.8
Japan	58.4	56.7	57.2	56.8	60.9	62.2	64.8	65.7		12.6
Latvia[a]	22.5	19.8	19.2	17.4	16.8	16.3	16.3	3.8	3.8	-83.1
Liechtenstein	0.1									
Lithuania[a]	13.2								11.1	-15.5
Luxembourg	0.6				0.7	0.7				8.5
Monaco[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.0
Netherlands	65.8	66.9	69.2	68.8	70.7	72.2	71.8	73.3	71.6	8.8
New Zealand	38.2	37.8	37.9	38.3	38.9	39.0	38.8	38.9	38.9	1.7
Norway	16.6	16.1	13.9	15.1	15.4	15.7	15.7	15.5	16.4	-1.5

Poland[a,b]	70.0	52.0	50.0	49.8	50.0	54.0	53.9	54.0	51.6	-26.3
Portugal	20.1	20.2	19.9	19.9	19.4	20.8	20.8	20.9	21.4	6.4
Romania[b]	66.3	24.8	26.9	26.2	25.0					-62.3
Russian Federation[a]	225.7				127.6	139.0	132.0			-41.5
Slovakia	19.9	16.9	14.9	12.5	12.6	13.2	11.0	11.0	10.7	-46.1
Slovenia	5.1									
Spain	133.0	130.7	127.8	119.9	127.1	124.4	139.5	140.4	141.4	6.3
Sweden	25.8	9.2	9.1	9.1	9.3	9.2	26.5	24.7	25.7	-0.4
Switzerland	11.3	11.4	11.5	11.6	11.6	11.6	11.6	11.5	11.6	2.2
Ukraine	58.0	51.3	38.3	24.2	20.1	15.2	14.9	15.6	15.8	-72.8
United Kingdom	211.9	205.6	183.0	171.1	186.0	177.6	184.0	189.4	180.6	-14.8
United States	1 280.2	1 306.9	1 339.6	1 345.7	1 437.3	1 405.5	1 437.4	1 448.1	1 412.0	10.3

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.

[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

[c] Estimates given here are rounded. Actual estimates rounded to the nearest thousandth are: 1990: 0.005; 1991: 0.006; 1992: 0.006; 1993: 0.007; 1994: 0.008; 1995: 0.008; 1996: 0.009; 1997: 0.009; 1998: 0.009.

Table B.14. N_2O emissions from fuel combustion, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	7.9	8.6	9.8	10.8	11.7	12.7	13.5	14.4	15.2	93.7
Austria	1.9	2.2	2.3	2.4	2.7	2.8	2.8	2.7	2.8	49.5
Belgium[a]	7.2	7.6	7.7	7.9	8.3	8.4	6.4	7.2	7.5	3.9
Bulgaria[a,b]	15.3	10.2	9.8	9.7	9.4	9.7		9.7	8.8	-42.5
Canada	28.0	28.4	30.6	32.6	35.1	36.2	36.3	36.8	35.9	28.6
Czech Republic[a]	20.0	18.5	17.1	16.6	16.6	16.4	4.2	4.3	4.5	-77.6
Denmark	1.8	2.2	2.2	2.3	2.5	2.5	3.0	2.9	2.9	57.5
Estonia[a]	1.4	1.4	1.0	0.9	0.8	0.8	0.8	0.7	0.1	-90.1
Finland	5.6	5.5	4.4	4.3	4.1	6.3	7.1	7.5	8.0	43.8
France	12.5	14.1	14.2	14.1	14.7	15.7	17.2	17.6	19.1	53.7
Germany	36.6	38.2	37.6	38.6	38.6	40.1	41.1	40.7	40.3	10.1
Greece	6.8	7.2	7.1	7.2	7.2	7.5	7.9	8.2	8.8	29.0
Hungary[b]	8.4	2.3	3.1	3.2	3.3	3.1	3.2	2.6	0.5	-93.9
Iceland[a]	0.0	0.0	0.0	0.0	0.0	0.1				75.0
Ireland	3.1	3.2	3.3	3.3	3.6	3.6	3.8	4.1	4.5	45.7
Italy	44.6	44.8	43.9	42.4	41.8	43.8	46.2	45.9	22.6	-49.4
Japan	19.3	20.0	20.5	20.7	21.7	23.4	23.6	23.8		23.2
Latvia[a]	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	42.3
Liechtenstein										
Lithuania[a]	1.0								0.2	-80.0
Luxembourg	0.1				0.2	0.2				51.5
Monaco[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.5
Netherlands	7.3	6.9	7.9	7.9	7.5	8.1	7.7	7.5	7.1	-2.7
New Zealand	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.8	23.9

Norway	1.0	1.0	1.0	1.1	1.3	1.4	1.6	1.8	2.0	108.6
Poland[a,b]	7.0	6.3	6.0	6.6	6.0	6.7	7.2	7.1	7.4	6.0
Portugal	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.5	3.6	16.6
Romania[b]	16.6	11.6	13.3	12.9	12.6					-24.0
Russian Federation[a]	17.4	16.3	14.2	13.5	11.1	11.1	9.8			-43.9
Slovakia	0.8	0.7	0.7	0.6	0.7	0.7	0.8	0.8	0.8	3.0
Slovenia	0.5									
Spain	13.8	14.4	15.1	14.1	15.6	16.8	16.0	17.2	18.7	35.4
Sweden	6.3	6.3	6.6	6.6	6.8	6.7	7.1	6.8	7.3	16.2
Switzerland	1.2	1.4	1.5	1.6	1.8	1.8	1.9	2.0	2.3	83.6
Ukraine	6.7	0.6	0.8	0.8	0.7	0.7	0.5	0.4	0.4	-94.0
United Kingdom	16.6	17.0	17.1	17.7	19.0	20.3	22.0	23.2	24.9	49.9
United States	207.7	216.9	230.8	241.3	249.5	253.5	256.2	254.4	253.7	22.1

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.

[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

[c] Estimates given here are rounded to the nearest tenth. Actual estimates rounded to the nearest hundredth are: 1990: 0.04, 1991: 0.04, 1992: 0.04, 1993: 0.04, 1994: 0.04, 1995: 0.07.

[d] Estimates given here are rounded to the nearest tenth. Actual estimates rounded to the nearest thousandth are: 1990: 0.003, 1991: 0.004, 1992: 0.004, 1993: 0.004, 1994: 0.005, 1995: 0.006, 1996: 0.006, 1997: 0.007, 1998: 0.007.

Table B.15. N_2O emissions from industrial processes, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	1.6	1.5	1.8	1.6	1.4	1.4	1.6	1.6	1.7	1.9
Austria	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	-8.7
Belgium[a]	11.5	11.2	10.1	10.9	12.6	13.8	15.1	14.5	15.1	31.5
Bulgaria[a,b]	7.8	5.2	4.3	3.7	4.3	6.2		6.9	3.1	-60.0
Canada	37.1	34.7	34.6	31.8	37.9	37.1	39.6	34.4	18.8	-49.2
Czech Republic[a]	3.3	2.8	3.5	2.7	3.0	3.4	3.3	3.6	3.9	16.9
Denmark										
Estonia										
Finland	5.1	4.5	4.0	4.2	4.4	4.5	4.5	4.5	4.3	-17.2
France	89.6	89.9	83.8	74.9	78.6	81.6	79.9	80.6	51.9	-42.1
Germany	82.0	83.0	93.0	84.0	81.0	82.3	87.4	73.0	29.0	-64.6
Greece	2.3	1.9	2.0	1.9	1.8	1.8	2.1	1.8	1.8	-21.3
Hungary[b]		0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Iceland	0.2	0.2	0.1	0.1	0.1	0.1				-12.5
Ireland	3.3	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	-21.6
Italy	23.5	24.6	22.9	21.8	20.6	23.5	22.7	22.8	20.0	-14.9
Japan	23.9	21.8	21.6	21.2	24.0	23.8	26.6	28.1		17.6
Latvia										
Liechtenstein										
Lithuania[a]	1.4								9.3	562.1
Luxembourg										
Monaco										
Netherlands	31.5	32.3	30.4	30.0	31.6	31.6	31.7	35.0	33.8	7.3
New Zealand										

Norway	6.7	6.1	4.2	5.0	5.4	5.3	5.2	4.8	5.4	-18.1
Poland[b]	20.0	13.1	13.0	13.1	14.0	15.8	16.2	15.7	12.9	-35.5
Portugal	1.9	1.9	2.0	1.6	1.2	2.0	2.0	2.0	2.0	0.6
Romania[b]	24.4	6.4	6.8	6.3	5.6					-77.1
Russian Federation[b]	3.0				1.2	1.0	1.0			-66.7
Slovakia	1.9	1.7	1.6	1.3	2.1	2.3	0.2	0.3	0.2	-87.3
Slovenia										
Spain	9.3	8.4	7.1	5.9	7.0	7.4	7.9	7.5	7.0	-24.6
Sweden	2.7	2.7	2.3	2.3	2.3	2.3	2.8	2.2	2.6	-2.6
Switzerland	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-1.9
Ukraine	22.9	23.1	15.3	7.5	9.1	4.7	7.4	8.5	8.6	-62.6
United Kingdom	93.9	87.8	70.8	60.1	71.3	61.1	65.3	66.8	59.4	-36.8
United States	116.6	119.5	115.9	121.4	128.7	129.7	133.9	123.7	91.4	-21.6

[a] The trend shown here may not be fully consistent, , since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.

[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990: Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

[c] Estimates given here are rounded to the nearest tenth. Actual estimates rounded to the nearest thousandth are: 1991: 0.044; 1992: 0.115; 1993: 0.006; 1994: 0.008; 1995: 0.007; 1996: 0.007; 1997: 0.007; 1998: 0.003.

Table B.16. N_2O emissions from agriculture, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	60.7	61.2	60.6	62.1	62.9	63.1	63.3	66.6	70.7	16.5
Austria	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	-1.2
Belgium[a]	10.9	10.9	10.9	10.7	9.8	9.8	10.8	10.8	10.8	-0.9
Bulgaria[b]	57.4	52.2	44.4	39.8	38.0	38.6		4.5	35.2	-38.7
Canada	129.7	130.0	128.2	133.8	140.5	141.6	148.1	147.1	147.0	13.4
Czech Republic[c]	2.3	2.0	1.7	1.8	1.8	1.7	20.6	19.3	17.4	655.9
Denmark	33.1	32.4	30.3	30.6	29.7	29.5	28.5	27.4	27.6	-16.5
Estonia[a]	0.9	0.9	0.7	0.5	0.5	0.4	0.4	0.0	1.2	31.1
Finland	15.4	14.3	13.1	13.3	13.3	13.7	13.4	13.2	12.9	-16.2
France	181.7	179.1	173.8	169.4	171.0	172.5	175.0	177.2	177.2	-2.5
Germany	96.0	87.0	83.0	82.0	86.0	85.2	85.0	84.0	84.0	-12.5
Greece	21.2	21.2	20.0	19.7	19.9	19.0	19.3	19.6	19.7	-7.2
Hungary[b]	4.6	1.7	1.6	1.5	1.8	1.6	1.7	1.7	34.6	658.0
Iceland	0.2	0.2	0.2	0.2	0.2	0.2				-13.6
Ireland	22.9	22.9	22.6	23.1	23.7	24.4	24.8	24.1	25.3	10.8
Italy	77.6	80.5	80.5	81.3	80.4	79.6	78.3	81.3	81.3	4.8
Japan	9.3	9.1	9.0	9.0	8.8	8.5	7.6	6.5		-29.6
Latvia[a]	22.0	19.3	18.8	17.0	16.3	15.7	15.6	3.1	3.2	-85.5
Liechtenstein										
Lithuania[a]	10.8								1.7	-84.7
Luxembourg	0.5				0.5	0.5				
Monaco										
Netherlands	22.2	22.9	26.2	26.2	26.4	27.6	27.5	25.9	25.9	16.7
New Zealand	37.1	36.7	36.7	37.2	37.7	37.8	37.6	37.6	37.6	1.2
Norway	8.6	8.6	8.3	8.5	8.3	8.5	8.4	8.4	8.4	-1.9
Poland[b]	43.0	32.6	32.0	30.0	30.0	31.4	30.5	31.2	31.2	-27.4

Portugal	8.8	7.9	7.5	7.8	7.1	7.8	7.5	7.6	9.2	9.2
Romania[b]	23.3	6.7	6.9	6.8	6.8					-73.1
Russian Federation[b]	209.0				130.0	111.0	105.0			-47.9
Slovakia	16.6	13.9	12.1	10.0	9.3	9.6	9.5	9.8	9.1	-44.9
Slovenia	4.6									
Spain	109.1	106.1	103.6	97.9	102.8	98.3	113.5	113.5	113.5	5.0
Sweden	16.9	9.2	9.2	9.2	9.2	9.2	16.9	15.7	15.7	-6.2
Switzerland	9.2	9.2	9.1	9.0	8.9	8.7	8.6	8.5	8.3	-9.8
Ukraine	28.0	27.4	21.3	13.7	9.6	9.4	5.9	6.5	6.4	-77.1
United Kingdom	100.4	99.9	94.5	92.5	95.0	95.5	96.0	98.9	95.7	-4.7
United States	931.8	946.2	960.0	958.0	1 033.4	996.8	1 021.5	1 044.0	1 040.6	11.7

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.
[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988), Hungary (average of 1985-1987), Poland (1988) and Romania (1989).
[c] Party indicated the Revised IPCC Guidelines were used for calculation of emissions from agricultural soils and therefore the estimate for 1998 is not comparable with estimates for earlier years.

Table B.17. N_2O emissions from agricultural soils, 1990-1998 (Gigagrams and percentage change)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	Change 1990 to latest reported estimate (%)
Australia	46.9	47.3	46.9	47.7	48.0	47.1	46.7	49.7	51.8	10.4
Austria	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	-1.2
Belgium[a]	10.9	10.9	10.9	10.7	9.4	9.4	9.4	9.3	9.3	-14.5
Bulgaria[a,b]	53.9	49.2	41.9	37.8	36.3	37.0		2.5	33.7	-37.5
Canada	116.0	116.0	114.1	119.2	125.1	125.6	131.9	130.6	130.8	12.7
Czech Republic[a]	2.3	2.0	1.7	1.8	1.8	1.7	12.0	11.3	15.9	593.3
Denmark	31.6	30.8	28.8	29.0	28.1	27.9	27.0	25.9	26.1	-17.3
Estonia[a]								0.0	1.2	
Finland	13.7	12.8	11.6	11.8	11.8	12.3	12.0	11.7	11.5	-16.6
France	171.0	168.6	163.5	159.1	160.7	162.1	164.6	166.9	166.9	-2.4
Germany	85.0	78.0	74.0	73.0	77.0	76.6	76.0	76.0	76.0	-10.6
Greece	20.7	20.6	19.5	19.2	19.3	18.5	18.7	19.0	19.0	-8.2
Hungary[a,c]	4.6	1.7	1.6	1.5	1.8	1.6	1.7	1.7	32.9	621.9
Iceland	0.2	0.2	0.2	0.2	0.2	0.2				-13.6
Ireland	20.8	20.8	20.5	21.0	21.6	22.2	22.5	21.7	23.0	10.5
Italy	65.2	68.1	68.6	69.4	68.6	67.4	66.1	69.0	69.0	5.7
Japan	3.8	3.6	3.6	3.5	3.5	3.3	2.1	1.0		-72.4
Latvia[a]	22.0	19.3	18.8	17.0	16.3	15.7	15.6		3.2	-85.5
Liechtenstein										
Lithuania									1.7	
Luxembourg	0.5				0.5	0.5				0.0
Monaco										
Netherlands	21.5	22.2	25.5	25.4	25.6	26.8	26.8	25.3	25.2	17.2
New Zealand	36.8	36.4	36.4	36.8	37.3	37.4	37.2	37.2	37.3	1.2
Norway	8.6	8.6	8.3	8.5	8.3	8.5	8.4	8.4	8.4	-1.9
Poland[a,b]	43.0	32.5	32.0	29.9	30.0	31.4	30.4	31.2	31.2	-27.5

Portugal	8.2	7.6	7.3	7.1	6.9	7.1	7.3	7.4	7.5	-9.1
Romania[b]	25.1	6.5								-74.0
Russian Federation						111.0	105.0			
Slovakia	13.0	10.6	9.3	7.6	7.0	7.3	7.3	7.4	7.3	-43.4
Slovenia	4.6									
Spain	58.2	57.6	53.9	46.6	53.5	50.9	61.1	61.1	61.1	5.0
Sweden[d]	14.6	0.2	0.2	0.2		0.2	14.6	13.8	13.8	-5.6
Switzerland	7.8	7.7	7.6	7.6	7.5	7.3	7.3	7.1	7.0	-10.2
Ukraine										
United Kingdom	95.1	94.6	89.2	87.5	89.9	90.5	90.9	93.8	90.7	-4.6
United States	890.9	902.9	925.1	913.7	987.6	951.5	974.9	996.3	991.9	11.3

[a] The trend shown here may not be fully consistent, since data for the entire period were not provided in the latest submission (see table 2 in section II of this document) and different sources of data were used.

[b] In accordance with decision 9/CP.2, some Parties with economies in transition use base years other than 1990. Bulgaria (1988); Hungary (average of 1985-1987); Poland (1988) and Romania (1989).

[c] Party indicated that the Revised IPCC Guidelines were used for calculations for the years 1990 and 1996-1998 and therefore emission estimates for these years are not comparable with estimates for the years 1991-1995.

[d] Party indicated that the Revised IPCC Guidelines were used for calculations for 1998 and therefore this estimate is not comparable with estimates for earlier years.

Table C.1. Emission estimates for the European Community, 1990

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 320 481	214 686	20 945	1 286	13 320	49 785	16 633	16 075
1. Energy	3 156 789		4 813	167	13 022	44 374	8 722	15 726
A. Fuel combustion	3 131 345		789	167	12 991	44 193	7 413	15 254
1. Energy industries	1 148 052		32	55	2 894	452	50	10 040
2. Manufacturing industries and construction	635 832		58	35	1 652	3 477	128	2 791
3. Transport	692 346		205	40	6 992	32 104	6 193	674
4. Other sectors	632 981		489	36	1 320	8 008	1 017	1 500
5. Other	21 694		4	1	132	151	25	82
B. Fugitive emissions from fuels	25 405		4 024	1	31	180	1 309	472
1. Solid fuels	6 500		2 426		1	96	18	163
2. Oil and natural gas	18 944		1 598	1	31	85	1 291	309
2. Industrial processes	150 780		22	357	192	3 510	1 011	325
A. Mineral products	107 214		0		43	28	211	40
B. Chemical industry	12 366		7	353	86	61	374	122
C. Metal production	23 666		7	0	24	3 243	18	73
D. Other production	1 260				6	1	225	11
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	4 454		4		24	158	162	35
3. Solvent and other product use	6 809		2	10	0	2	4 270	0
4. Agriculture			9 074	713	37	519	936	1
A. Enteric fermentation			6 733					
B. Manure management			2 013	95			1	
C. Rice cultivation			109	1	0		0	
D. Agricultural soils			194	617	17		863	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			25	1	21	519	72	1
G. Other								
5. Land-use change and forestry		214 686	170	19	20	630	1 590	1
A. Changes in forest and other woody biomass stocks		260 954	54	0	13	471	30	
B. Forest and grassland conversion	11 950		18	0	5	160	10	1
C. Abandonment of managed lands		122						
D. CO_2 emissions and removals from soil	31 631							
E. Other	2 808		98	18	2		1 549	
6. Waste	5 403		6 865	16	49	749	106	22
A. Solid waste disposal on land	264		6 415	0	3	54	43	1
B. Wastewater handling			337	13			4	
C. Waste incineration	5 040		40	3	45	695	45	21
D. Other	100		75				12	
7. Other	600			4				
Memo items:								
International bunkers	166 631		10	5	1 470	295	180	943
Aviation	58 818		4	1	221	179	64	14
Marine	107 813		6	4	1 249	116	116	929
CO_2 emissions from biomass	137 965							

Other gases (CO_2 equivalent, gigagrams)

HFC	9 369
PFC	12 571
SF_6	7 456

Other gases includes emissions from Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.2. Emission estimates for the European Community, 1991

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 348 636	224 081	20 389	1 264	13 303	48 652	16 174	14 605
1 Energy	3 192 205		4 720	173	13 004	43 396	8 461	14 279
A Fuel combustion	3 168 491		783	172	12 974	43 225	7 189	13 978
1 Energy industries	1 133 010		32	55	2 822	445	52	9 468
2 Manufacturing industries and construction	600 808		52	33	1 646	3 356	128	2 432
3 Transport	694 004		193	40	7 052	31 524	5 969	654
4 Other sectors	671 277		485	37	1 348	7 794	1 028	1 222
5 Other	68 993		20	6	106	106	14	56
B Fugitive emissions from fuels	23 724		3 897	1	31	171	1 271	302
1 Solid fuels	5 800		2 319		0	99	16	16
2 Oil and natural gas	17 924		1 618	1	30	72	1 255	285
2 Industrial processes	142 119		22	352	180	3 099	1 013	302
A Mineral products	101 796		0		44	29	240	41
B Chemical industry	11 640		7	348	66	51	351	110
C Metal production	20 483		11	0	21	2 774	17	65
D Other production	1 049				6	1	221	9
E Production of halocarbons and SF_6								
F Consumption of halocarbons and SF_6								
G Other	2 897		4		14	128	123	31
3 Solvent and other product use	6 751		2	10	0	2	4 147	0
4 Agriculture			8 851	689	38	537	879	1
A Enteric fermentation			6 593					
B Manure management			1 933	91			1	
C Rice cultivation			107	1	0		0	
D Agricultural soils	1 425		194	596	16		810	
E Prescribed burning of savannas								
F Field burning of agricultural residues			26	1	21	537	67	1
G Other								
5 Land-use change and forestry		224 081	190	19	25	800	1 558	0
A Changes in forest and other woody biomass stocks		269 691	79	1	19	695	45	
B Forest and grassland conversion	11 053		12	0	3	105	2	0
C Abandonment of managed lands		126						
D CO_2 emissions and removals from soil	31 902							
E Other	2 783		98	19	2		1 511	
6 Waste	5 520		6 604	17	57	908	117	22
A Solid waste disposal on land	322		6 175	0	3	58	45	1
B Wastewater handling			310	14			4	
C Waste incineration	5 098		47	3	53	850	51	21
D Other	100		74	0			15	
7 Other	615			4				
Memo items:								
International bunkers	166 127		10	5	1 436	282	179	909
Aviation	58 808		5	1	216	172	61	15
Marine	107 318		5	3	1 220	110	117	895
CO_2 emissions from biomass	120 808							

Other gases (CO_2 equivalent, gigagrams)

HFC	8 340
PFC	10 854
SF_6	7 685

Other gases includes emissions from Denmark, France, Germany, Greece, Italy, Netherlands, Spain and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.3. Emission estimates for the European Community, 1992

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 268 949	212 359	19 699	1 215	12 954	46 041	15 539	13 468
1. Energy	3 117 973		4 593	173	12 693	41 525	8 176	13 166
A. Fuel combustion	3 098 057		733	172	12 663	41 371	6 950	12 870
1. Energy industries	1 116 580		34	55	2 646	425	52	8 796
2. Manufacturing industries and construction	591 243		53	34	1 564	3 264	126	2 237
3. Transport	729 389		190	46	7 047	30 496	5 782	638
4. Other sectors	647 251		452	36	1 307	7 078	968	1 008
5. Other	13 224		3	0	101	109	24	39
B. Fugitive emissions from fuels	19 926		3 859	1	30	154	1 226	295
1. Solid fuels	2 176		2 245		0	92	15	14
2. Oil and natural gas	17 750		1 615	1	30	62	1 211	282
2. Industrial processes	138 750		22	332	162	2 924	1 003	278
A. Mineral products	99 374		0		43	30	239	42
B. Chemical industry	10 669		7	325	55	57	353	96
C. Metal production	18 520		6	0	20	2 678	17	59
D. Other production	1 331				6	1	227	9
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	3 077		4		13	101	117	27
3. Solvent and other product use	6 514		2	10	0	2	3 968	0
4. Agriculture			8 686	660	32	414	812	1
A. Enteric fermentation			6 438					
B. Manure management			1 926	90			1	
C. Rice cultivation			106	1	0		0	
D. Agricultural soils			195	569	16		756	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			20	0	17	414	54	1
G. Other								
5. Land-use change and forestry		212 359	133	19	12	334	1 462	0
A. Changes in forest and other woody biomass stocks		257 310	25	0	6	219	14	
B. Forest and grassland conversion	10 893		13	0	3	115	3	0
C. Abandonment of managed lands		136						
D. CO_2 emissions and removals from soil	31 459							
E. Other	2 735		95	19	2		1 445	
6. Waste	5 712		6 264	17	56	842	116	24
A. Solid waste disposal on land	370		5 822	0	4	61	46	1
B. Wastewater handling			312	14			4	0
C. Waste incineration	5 242		45	3	51	780	49	22
D. Other	100		87	0			18	
7. Other				4				
Memo items:								
International bunkers	172 359		10	5	1 479	307	187	883
Aviation	64 432		4	1	238	189	66	17
Marine	107 927		6	4	1 241	118	121	867
CO_2 emissions from biomass	120 110							

Other gases (CO_2 equivalent, gigagrams)

HFC	8 268
PFC	9 192
SF_6	8 428

Other gases includes emissions from Denmark, France, Germany, Greece, Italy, Netherlands, Spain and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.4. Emission estimates for the European Community, 1993

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 205 347	218 018	18 928	1 172	12 331	43 754	14 852	12 290
1. Energy	3 060 106		4 153	172	12 088	39 564	7 741	12 012
A. Fuel combustion	3 040 374		719	171	12 058	39 431	6 605	11 696
1. Energy industries	1 061 719		35	55	2 399	408	51	7 906
2. Manufacturing industries and construction	571 925		49	30	1 473	3 189	118	2 019
3. Transport	734 907		184	51	6 799	28 863	5 476	654
4. Other sectors	656 832		437	35	1 287	6 873	940	943
5. Other	14 683		13	0	100	99	23	26
B. Fugitive emissions from fuels	19 683		3 433	1	30	132	1 135	317
1. Solid fuels	1 940		1 809		0	81	13	14
2. Oil and natural gas	17 743		1 625	1	30	51	1 122	303
2. Industrial processes	133 357		23	301	151	2 801	991	254
A. Mineral products	95 002		0		42	30	254	37
B. Chemical industry	10 659		7	294	43	56	345	84
C. Metal production	18 482		6	0	18	2 558	16	58
D. Other production	1 164				5	1	224	7
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	2 597		5		15	100	101	23
3. Solvent and other product use	6 175		2	11	0	2	3 880	0
4. Agriculture			8 612	648	26	267	735	1
A. Enteric fermentation			6 397					
B. Manure management			1 902	92			1	
C. Rice cultivation			106	1	0		0	
D. Agricultural soils			194	556	14		698	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			13	0	12	267	36	1
G. Other								
5. Land-use change and forestry		218 018	128	19	10	294	1 388	1
A. Changes in forest and other woody biomass stocks		263 163	18	0	4	153	10	
B. Forest and grassland conversion	11 903		16	0	4	141	7	1
C. Abandonment of managed lands		148						
D. CO_2 emissions and removals from soil	30 703							
E. Other	2 687		95	19	2		1 371	
6. Waste	5 709		6 010	18	57	827	118	22
A. Solid waste disposal on land	358		5 479	0	3	60	46	1
B. Wastewater handling			383	15			4	
C. Waste incineration	5 252		44	3	52	767	47	21
D. Other	100		105				21	
7. Other				4				
Memo items:								
International bunkers	182 295		10	5	1 556	333	190	959
Aviation	70 730		4	1	270	203	71	17
Marine	111 566		6	4	1 286	129	119	941
CO_2 emissions from biomass	121 834							

Other gases (CO_2 equivalent, gigagrams)

HFC	9 002
PFC	7 720
SF_6	9 078

Other gases includes emissions from Denmark, France, Germany, Greece, Italy, Netherlands, Spain and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.5. Emission estimates for the European Community, 1994

	CO_2	CO_2 Removals	CH_4	N_2O	NOx	CO	NMVOC	SO_2
Total national emissions and removals	3 217 380	207 837	18 423	1 211	11 904	41 869	14 732	11 019
1. Energy	2 063 416		3 787	179	11 665	37 385	7 393	10 787
A. Fuel combustion	3 041 560		681	178	11 633	37 220	6 256	10 504
1. Energy industries	1 063 530		36	53	2 290	389	52	7 093
2. Manufacturing industries and construction	594 131		51	31	1 443	3 396	120	1 806
3. Transport	742 131		181	57	6 551	26 804	5 143	654
4. Other sectors	629 095		398	33	1 256	6 540	918	778
5. Other	12 481		14	4	91	93	22	17
B. Fugitive emissions from fuels	21 901		3 106	1	32	165	1 137	283
1. Solid fuels	1 787		1 510		0	85	13	11
2. Oil and natural gas	20 114		1 597	1	32	80	1 124	272
2. Industrial processes	142 395		24	314	147	3 149	954	210
A. Mineral products	99 680		1		42	30	237	38
B. Chemical industry	10 769		7	309	43	54	337	79
C. Metal production	22 267		6	0	18	2 885	15	53
D. Other production	1 155				6	1	230	5
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	3 050		6		10	102	89	35
3. Solvent and other product use	6 207		2	11	0	2	3 891	0
4. Agriculture			8 593	664	27	259	800	1
A. Enteric fermentation			6 360	8	-			
B. Manure management			1 911	91			1	
C. Rice cultivation			115	1	0		0	
D. Agricultural soils			195	564	16		766	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			12	0	12	259	33	1
G. Other								
5. Land-use change and forestry		207 837	126	21	10	274	1 579	0
A. Changes in forest and other woody biomass stocks		249 463	18	0	4	155	10	
B. Forest and grassland conversion	11 326		14	0	3	118	3	0
C. Abandonment of managed lands		157						
D. CO_2 emissions and removals from soil	27 698							
E. Other	2 759		94	21	2		1 566	
6. Waste	5 362		5 891	18	54	800	117	21
A. Solid waste disposal on land	290		5 439	0	3	54	44	1
B. Wastewater handling			308	15			3	
C. Waste incineration	5 072		43	3	51	746	46	20
D. Other			101				24	
7. Other				4				
Memo items:								
International bunkers	180 485		10	5	1 515	339	187	896
Aviation	72 118		5	1	280	216	79	19
Marine	108 368		6	4	1 236	123	109	877
CO_2 emissions from biomass	125 426							

Other gases (CO_2 equivalent, gigagrams)

HFC	12 200
PFC	7 746
SF_6	10 961

Other gases includes emissions from Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.6. Emission estimates for the European Community, 1995

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 260 298	203 838	18 320	1 216	11 569	40 936	14 321	10 070
1. Energy	3 101 383		3 779	187	11 320	35 931	7 050	9 852
A. Fuel combustion	3 077 923		670	186	11 288	35 793	6 007	9 581
1. Energy industries	1 070 474		42	57	2 219	387	60	6 409
2. Manufacturing industries and construction	606 384		53	32	1 419	3 278	117	1 787
3. Transport	748 803		176	62	6 280	25 696	4 922	553
4. Other sectors	636 214		397	34	1 280	6 340	897	666
5. Other	13 851		2	1	91	92	11	14
B. Fugitive emissions from fuels	23 489		3 109	1	32	138	1 043	271
1. Solid fuels	5 486		1 567		1	91	13	8
2. Oil and natural gas	18 043		1 542	1	31	47	1 030	263
2. Industrial processes	145 803		24	313	147	3 327	964	196
A. Mineral products	100 405		1		45	24	248	43
B. Chemical industry	11 547		12	308	46	77	360	85
C. Metal production	24 464		6	0	20	3 148	18	53
D. Other production	1 233				6	4	238	8
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	2 865		1		1	16	50	7
3. Solvent and other product use	6 173		2	11	0	2	3 815	
4. Agriculture			8 594	662	25	229	780	1
A. Enteric fermentation			6 349					
B. Manure management			1 927	88			1	
C. Rice cultivation			114	1	0		0	
D. Agricultural soils			194	573	15		751	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			11	0	10	229	28	1
G. Other								
5. Land-use change and forestry		203 838	169	22	21	655	1 593	0
A. Changes in forest and other woody biomass stocks		244 972	62	0	15	544	35	
B. Forest and grassland conversion	11 217		13	0	3	111	2	0
C. Abandonment of managed lands		168						
D. CO_2 emissions and removals from soil	27 300							
E. Other	2 783		94	21	2		1 556	
6. Waste	6 139		5 752	18	56	792	118	20
A. Solid waste disposal on land	124		5 293	0	2	40	39	0
B. Wastewater handling			307	15			4	
C. Waste incineration	4 413		43	3	51	752	46	19
D. Other	1 642		109	0	3	1	29	1
7. Other	700			4			1	
Memo items:								
International bunkers	184 424		11	5	1 569	346	189	926
Aviation	74 612		5	1	288	220	78	18
Marine	109 812		6	4	1 282	126	111	908
CO_2 emissions from biomass	132 685							

Other gases (CO_2 equivalent, gigagrams)

HFC	15 703
PFC	7 943
SF_6	12 889

Other gases includes emissions from Austria, Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Portugal, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.7. Emission estimates for the European Community, 1996

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 335 895	192 320	17 820	1 263	11 138	38 879	13 617	8 816
1. Energy	3 179 346		3 639	192	10 889	34 425	6 701	8 566
A. Fuel combustion	3 155 485		686	191	10 858	34 289	5 665	8 304
1. Energy industries	1 076 937		45	59	2 110	409	63	5 454
2. Manufacturing industries and construction	595 737		51	30	1 405	3 081	134	1 568
3. Transport	766 744		169	67	5 925	24 236	4 545	472
4. Other sectors	703 780		417	35	1 353	6 512	915	648
5. Other	12 291		2	1	65	51	8	13
B. Fugitive emissions from fuels	23 859		2 953	1	31	136	1 036	262
1. Solid fuels	5 128		1 391		1	91	13	9
2. Oil and natural gas	18 752		1 562	1	30	46	1 023	254
2. Industrial processes	142 946		23	322	151	3 047	912	229
A. Mineral products	100 406		0		44	20	215	53
B. Chemical industry	11 556		13	320	51	91	359	83
C. Metal production	23 743		6	0	30	2 909	19	64
D. Other production	1 675		0		6	5	273	19
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	4 725		1		13	23	47	9
3. Solvent and other product use	6 250		2	11	0	2	3 728	0
4. Agriculture			8 581	696	30	275	709	1
A. Enteric fermentation			6 342					
B. Manure management			1 912	96			1	
C. Rice cultivation			119	1	0		0	
D. Agricultural soils			194	598	17		671	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			13	0	12	275	38	1
G. Other								
5. Land-use change and forestry		192 320	133	21	12	336	1 448	0
A. Changes in forest and other woody biomass stocks		233 643	26	0	6	231	15	
B. Forest and grassland conversion	10 844		12	0	3	104	1	0
C. Abandonment of managed lands		172						
D. CO_2 emissions and removals from soil	27 985							
E. Other	2 666		95	21	2		1 432	
6. Waste	6 634		5 483	18	55	794	118	20
A. Solid waste disposal on land	82		4 955	0	2	36	37	0
B. Wastewater handling	3		311	15			4	
C. Waste incineration	4 681		44	3	51	757	47	19
D. Other	1 868		133	0	2	1	31	1
7. Other	700			4			1	
Memo items:								
International bunkers	195 064		11	5	1 651	338	194	1 003
Aviation	77 020		5	1	298	218	80	19
Marine	118 044		6	4	1 354	120	114	984
CO_2 emissions from biomass	160 650							

Other gases (CO_2 equivalent, gigagrams)

HFC	17 540
PFC	7 217
SF_6	10 272

Other gases includes emissions from Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.8. Emission estimates for the European Community, 1997

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 278 534	197 064	17 637	1 256	10 665	36 984	13 342	8 117
1. Energy	3 119 223		3 582	195	10 440	32 564	6 334	7 909
A. Fuel combustion	3 095 882		652	194	10 409	32 431	5 321	7 649
1. Energy industries	1 017 219		44	55	1 950	344	51	5 111
2. Manufacturing industries and construction	596 566		51	29	1 443	3 164	124	1 478
3. Transport	766 322		160	68	5 642	22 718	4 285	313
4. Other sectors	641 496		374	34	1 307	6 150	851	573
5. Other	14 546		1	0	67	56	9	10
B. Fugitive emissions from fuels	23 341		2 930	0	31	133	1 013	260
1. Solid fuels	5 256		1 411		1	91	12	4
2. Oil and natural gas	18 115		1 519	0	30	42	1 001	257
2. Industrial processes	145 713		29	312	130	3 086	967	186
A. Mineral products	106 009		0		45	23	266	43
B. Chemical industry	11 490		10	310	42	77	354	72
C. Metal production	24 298		6	0	27	2 969	19	53
D. Other production	1 177		0		17	16	264	19
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	1 844		0		0	1	44	0
3. Solvent and other product use	6 416		2	11	0	2	3 732	0
4. Agriculture			8 556	699	30	276	721	1
A. Enteric fermentation			6 339					
B. Manure management			1 893	95			1	
C. Rice cultivation			119	1	0		0	
D. Agricultural soils			192	602	17		684	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			13	0	12	276	37	1
G. Other								
5. Land-use change and forestry		197 064	113	18	8	207	1 466	0
A. Changes in forest and other woody biomass stocks		234 115	9	0	2	83	5	
B. Forest and grassland conversion	11 496		14	0	4	124	4	0
C. Abandonment of managed lands		186						
D. CO_2 emissions and removals from soil	28 908							
E. Other		785	90	18	2		1 457	
6. Waste	6 631		5 363	18	56	850	123	19
A. Solid waste disposal on land	65		4 836	0	2	35	36	0
B. Wastewater handling			318	15			4	
C. Waste incineration	4 083		46	3	52	815	50	18
D. Other	2 483		163	0	2	1	33	1
7. Other	600			4				
Memo items:								
International bunkers	209 675		12	6	1 767	356	210	1 090
Aviation	81 107		5	2	311	233	85	21
Marine	126 268		6	3	1 456	124	125	1 070
CO_2 emissions from biomass	135 877							

Other gases (CO_2 equivalent, gigagrams)

HFC	21 984
PFC	7 125
SF_6	10 340

Other gases includes emissions from Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

Table C.9. **Emission estimates for the European Community, 1998**

	CO_2	CO_2 Removals	CH_4	N_2O	NO_x	CO	NMVOC	SO_2
Total national emissions and removals	3 327 520	203 641	17 498	1 160	8 981	29 680	11 020	6 986
1. Energy	3 163 825		3 541	178	8 772	25 588	4 850	6 812
A. Fuel combustion	3 130 620		688	177	8 749	25 478	3 997	6 594
1. Energy industries	1 076 337		69	43	1 700	330	46	4 422
2. Manufacturing industries and construction	599 878		60	26	1 206	2 483	111	1 224
3. Transport	798 166		162	79	4 651	16 924	2 986	278
4. Other sectors	652 164		395	29	1 139	5 689	846	486
5. Other	14 075		2	1	53	52	8	9
B. Fugitive emissions from fuels	23 205		2 853	0	24	111	853	218
1. Solid fuels	5 207		1 347		1	78	9	1
2. Oil and natural gas	17 999		1 506	0	23	33	844	216
2. Industrial processes	146 815		27	230	126	2 762	884	155
A. Mineral products	110 536		0	0	45	23	274	26
B. Chemical industry	11 235		8	230	40	65	300	66
C. Metal production	22 383		18	0	24	2 658	16	48
D. Other production	712		0	0	16	15	254	14
E. Production of halocarbons and SF_6								
F. Consumption of halocarbons and SF_6								
G. Other	1 954		0		0	1	41	0
3. Solvent and other product use	6 260		2	11	0	2	3 174	
4. Agriculture			8 527	701	29	251	718	1
A. Enteric fermentation			6 307					
B. Manure management			1 897	97				
C. Rice cultivation			117	1	0		0	
D. Agricultural soils	1 380		192	603	17		682	
E. Prescribed burning of savannas								
F. Field burning of agricultural residues			13	0	11	251	36	1
G. Other								
5. Land-use change and forestry		203 641	152	18	17	521	1 294	
A. Changes in forest and other woody biomass stocks		241 032	48	0	12	423	27	
B. Forest and grassland conversion	11 491		14	0	3	98		
C. Abandonment of managed lands		186						
D. CO_2 emissions and removals from soil	29 402							
E. Other		933	90	18	2		1 267	
6. Waste	6 539		5 250	18	37	555	99	18
A. Solid waste disposal on land	62		4 723	0	2	34	27	0
B. Wastewater handling			311	15			4	
C. Waste incineration	4 165		47	3	33	521	31	17
D. Other	2 312		169	0	2	0	36	1
7. Other	2 655			4				
Memo items:								
International bunkers	221 924		13	7	1 704	369	222	1 076
Aviation	88 997		6	2	321	245	88	21
Marine	132 927		7	4	1 383	124	134	1 056
CO_2 emissions from biomass	158 092							

Other gases (CO_2 equivalent, gigagrams)

HFC	23 971
PFC	7 275
SF_6	11 144

Other gases includes emissions from Austria, Belgium, Denmark, France, Germany, Greece, Italy, Netherlands, Spain, Sweden and United Kingdom of Great Britain and Northern Ireland. The Party indicated that average global warming potentials based on information from various EU Member States were used in case of missing chemical specification by Member States (HFC:1000, PFC:7000).

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